Level roof, WC6.2.2: Terrace post

1 piece(s) 6 x 6 DF No.2

Post Height: 11'

Drawing is Conceptual

Design Results	Actual	Allowed	Result	LDF	Load: Combination
Slenderness	24	50	Passed (48%)	--	--
Compression (lbs)	13911	15706	Passed (89%)	1.25	1.0 D + 1.0 Lr
Base Bearing (lbs)	13911	898425	Passed (2%)	--	1.0 D + 1.0 Lr
Bending/Compression	N/A	1	Passed (N/A)	--	N/A

- Input axial load eccentricity for the design is zero
- Applicable calculations are based on NDS.

Supports	Type	Material
Base	Plate	Steel

Max Unbraced Length	Comments
Full Member Length	No bracing assumed.

Member Type : Free Standing Post
Building Code : IBC 2021
Design Methodology : ASD

Vertical Loads	Dead (0.90)	Roof Live (1.25)	Snow (1.15)	Wind (1.60)	Comments
1 - Point (lb)	2072	1285	4883	-1000	
2 - Point (lb)	4554	6000	--	--	

Weyerhaeuser Notes

Weyerhaeuser warrants that the sizing of its products will be in accordance with Weyerhaeuser product design criteria and published design values. Weyerhaeuser expressly disclaims any other warranties related to the software. Use of this software is not intended to circumvent the need for a design professional as determined by the authority having jurisdiction. The designer of record, builder or framer is responsible to assure that this calculation is compatible with the overall project. Accessories (Rim Board, Blocking Panels and Squash Blocks) are not designed by this software. Products manufactured at Weyerhaeuser facilities are third-party certified to sustainable forestry standards. Weyerhaeuser Engineered Lumber Products have been evaluated by ICC-ES under evaluation reports ESR-1153 and ESR-1387 and/or tested in accordance with applicable ASTM standards. For current code evaluation reports, Weyerhaeuser product literature and installation details refer to www.weyerhaeuser.com/woodproducts/document-library.

The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

Level roof, WC6.2.3: Terrace post

1 piece(s) 6 x 6 DF No.2

Post Height: 11'

Drawing is Conceptual

Design Results	Actual	Allowed	Result	LDF	Load: Combination
Slenderness	24	50	Passed (48%)	--	--
Compression (lbs)	5636	15218	Passed (37%)	1.15	1.0 D + 1.0 S
Base Bearing (lbs)	5636	898425	Passed (1%)	--	1.0 D + 1.0 S
Bending/Compression	0.46	1	Passed (46%)	1.15	1.0 D + 1.0 S

- Input axial load eccentricity for this design is 16.67% of applicable member side dimension.
- Applicable calculations are based on NDS.

Supports	Type	Material
Base	Plate	Steel

Max Unbraced Length	Comments
Full Member Length	No bracing assumed.

Member Type : Free Standing Post
Building Code : IBC 2021
Design Methodology : ASD

Vertical Load	Dead (0.90)	Roof Live (1.25)	Snow (1.15)	Comments
1 - Point (lb)	1551	1075	4085	4498 uplift

Weyerhaeuser Notes

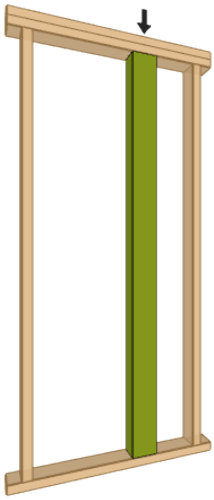
Weyerhaeuser warrants that the sizing of its products will be in accordance with Weyerhaeuser product design criteria and published design values. Weyerhaeuser expressly disclaims any other warranties related to the software. Use of this software is not intended to circumvent the need for a design professional as determined by the authority having jurisdiction. The designer of record, builder or framer is responsible to assure that this calculation is compatible with the overall project. Accessories (Rim Board, Blocking Panels and Squash Blocks) are not designed by this software. Products manufactured at Weyerhaeuser facilities are third-party certified to sustainable forestry standards. Weyerhaeuser Engineered Lumber Products have been evaluated by ICC-ES under evaluation reports ESR-1153 and ESR-1387 and/or tested in accordance with applicable ASTM standards. For current code evaluation reports, Weyerhaeuser product literature and installation details refer to www.weyerhaeuser.com/woodproducts/document-library.

The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

Level roof, WC6.3.1

1 piece(s) 5 1/4" x 7" 1.8E Parallam® PSL

Wall Height: 14' 1 1/2" Member Height: 13' 9" Tributary Width: 1'



Drawing is Conceptual

Design Results	Actual	Allowed	Result	LDF	Load: Combination
Slenderness	31	50	Passed (63%)	--	--
Compression (lbs)	18734	27049	Passed (69%)	1.15	1.0 D + 1.0 S
Plate Bearing (lbs)	18734	22969	Passed (82%)	--	1.0 D + 1.0 S
Lateral Reaction (lbs)	0	--	--	--	N/A
Lateral Shear (lbs)	0	N/A	Passed (N/A)	--	N/A
Lateral Moment (ft-lbs)	0 @ mid-span	N/A	Passed (N/A)	--	N/A
Total Deflection (in)	0.14 @ mid-span	0.69	Passed (L/1168)	--	1.0 D + 1.0 S
Bending/Compression	0.73	1	Passed (73%)	1.15	1.0 D + 1.0 S

- Wall deflection criteria: TL (L/240)
- Input axial load eccentricity for this design is 16.67% of applicable member side dimension.
- Applicable calculations are based on NDS.
- Bearing shall be on a metal plate or strap, or on other equivalently durable, rigid, homogeneous material with sufficient stiffness to distribute applied load.

Supports	Type	Material
Top	Dbl 2X	Douglas Fir-Larch
Base	2X	Douglas Fir-Larch

System : Wall
Member Type : Column
Building Code : IBC 2021
Design Methodology : ASD

Max Unbraced Length	Comments
13' 9"	

Vertical Load	Tributary Width	Dead (0.90)	Roof Live (1.25)	Snow (1.15)	Comments
1 - Point (lb)	N/A	4414	3000	14320	

Weyerhaeuser Notes

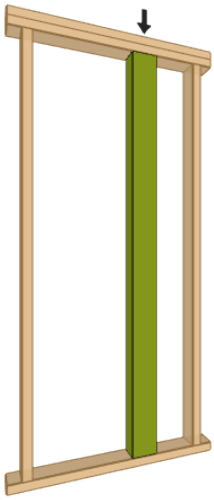
Weyerhaeuser warrants that the sizing of its products will be in accordance with Weyerhaeuser product design criteria and published design values. Weyerhaeuser expressly disclaims any other warranties related to the software. Use of this software is not intended to circumvent the need for a design professional as determined by the authority having jurisdiction. The designer of record, builder or framer is responsible to assure that this calculation is compatible with the overall project. Accessories (Rim Board, Blocking Panels and Squash Blocks) are not designed by this software. Products manufactured at Weyerhaeuser facilities are third-party certified to sustainable forestry standards. Weyerhaeuser Engineered Lumber Products have been evaluated by ICC-ES under evaluation reports ESR-1153 and ESR-1387 and/or tested in accordance with applicable ASTM standards. For current code evaluation reports, Weyerhaeuser product literature and installation details refer to www.weyerhaeuser.com/woodproducts/document-library.

The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

Level roof, WC6.3.2

4 piece(s) 2 x 6 DF No.2

Wall Height: 9' 3" Member Height: 8' 10 1/2" Tributary Width: 1'



Drawing is Conceptual

Design Results	Actual	Allowed	Result	LDF	Load: Combination
Slenderness	19	50	Passed (39%)	--	--
Compression (lbs)	14788	21904	Passed (68%)	1.15	1.0 D + 1.0 S
Plate Bearing (lbs)	14788	20625	Passed (72%)	--	1.0 D + 1.0 S
Lateral Reaction (lbs)	0	--	--	--	N/A
Lateral Shear (lbs)	0	N/A	Passed (N/A)	--	N/A
Lateral Moment (ft-lbs)	0 @ mid-span	N/A	Passed (N/A)	--	N/A
Total Deflection (in)	0.04 @ mid-span	0.89	Passed (L/2395)	--	1.0 D + 1.0 S
Bending/Compression	0.79	1	Passed (79%)	1.15	1.0 D + 1.0 S

- Wall deflection criteria: TL (L/120)
- Input axial load eccentricity for this design is 10.00% of applicable member side dimension.
- Applicable calculations are based on NDS.
- The column stability factor (Kf = 0.6) applied to this design assumes nailed built-up columns per NDS section 15.3.3. For Weyerhaeuser ELP products refer to the U.S. Wall Guide for multiple-member connection requirements.

Supports	Type	Material
Top	Dbl 2X	Douglas Fir-Larch
Base	2X	Douglas Fir-Larch

System : Wall
Member Type : Column
Building Code : IBC 2021
Design Methodology : ASD

Max Unbraced Length	Comments
8' 10 1/2"	

Vertical Load	Tributary Width	Dead (0.90)	Roof Live (1.25)	Snow (1.15)	Comments
1 - Point (lb)	N/A	4186	2791	10602	

Weyerhaeuser Notes

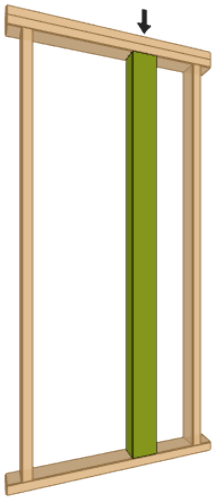
Weyerhaeuser warrants that the sizing of its products will be in accordance with Weyerhaeuser product design criteria and published design values. Weyerhaeuser expressly disclaims any other warranties related to the software. Use of this software is not intended to circumvent the need for a design professional as determined by the authority having jurisdiction. The designer of record, builder or framer is responsible to assure that this calculation is compatible with the overall project. Accessories (Rim Board, Blocking Panels and Squash Blocks) are not designed by this software. Products manufactured at Weyerhaeuser facilities are third-party certified to sustainable forestry standards. Weyerhaeuser Engineered Lumber Products have been evaluated by ICC-ES under evaluation reports ESR-1153 and ESR-1387 and/or tested in accordance with applicable ASTM standards. For current code evaluation reports, Weyerhaeuser product literature and installation details refer to www.weyerhaeuser.com/woodproducts/document-library.

The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

Level roof, WC6.3.3

4 piece(s) 2 x 6 DF No.2

Wall Height: 9' 3" Member Height: 8' 10 1/2" Tributary Width: 1'



Drawing is Conceptual

Design Results	Actual	Allowed	Result	LDF	Load: Combination
Slenderness	19	50	Passed (39%)	--	--
Compression (lbs)	17348	21904	Passed (79%)	1.15	1.0 D + 1.0 S
Plate Bearing (lbs)	17348	20625	Passed (84%)	--	1.0 D + 1.0 S
Lateral Reaction (lbs)	0	--	--	--	N/A
Lateral Shear (lbs)	0	N/A	Passed (N/A)	--	N/A
Lateral Moment (ft-lbs)	0 @ mid-span	N/A	Passed (N/A)	--	N/A
Total Deflection (in)	0.05 @ mid-span	0.89	Passed (L/2042)	--	1.0 D + 1.0 S
Bending/Compression	1.07	1	Failed (107%)	1.15	1.0 D + 1.0 S

- Wall deflection criteria: TL (L/120)
- Input axial load eccentricity for this design is 10.00% of applicable member side dimension.
- Applicable calculations are based on NDS.
- Bearing shall be on a metal plate or strap, or on other equivalently durable, rigid, homogeneous material with sufficient stiffness to distribute applied load.
- The column stability factor (Kf = 0.6) applied to this design assumes nailed built-up columns per NDS section 15.3.3. For Weyerhaeuser ELP products refer to the U.S. Wall Guide for multiple-member connection requirements.

Supports	Type	Material
Top	Dbl 2X	Douglas Fir-Larch
Base	2X	Douglas Fir-Larch

System : Wall
Member Type : Column
Building Code : IBC 2021
Design Methodology : ASD

Max Unbraced Length	Comments
8' 10 1/2"	

Vertical Load	Tributary Width	Dead (0.90)	Roof Live (1.25)	Snow (1.15)	Comments
1 - Point (lb)	N/A	4982	3335	12366	

Weyerhaeuser Notes

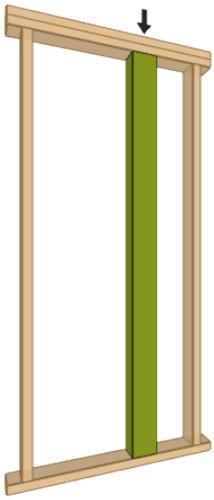
Weyerhaeuser warrants that the sizing of its products will be in accordance with Weyerhaeuser product design criteria and published design values. Weyerhaeuser expressly disclaims any other warranties related to the software. Use of this software is not intended to circumvent the need for a design professional as determined by the authority having jurisdiction. The designer of record, builder or framer is responsible to assure that this calculation is compatible with the overall project. Accessories (Rim Board, Blocking Panels and Squash Blocks) are not designed by this software. Products manufactured at Weyerhaeuser facilities are third-party certified to sustainable forestry standards. Weyerhaeuser Engineered Lumber Products have been evaluated by ICC-ES under evaluation reports ESR-1153 and ESR-1387 and/or tested in accordance with applicable ASTM standards. For current code evaluation reports, Weyerhaeuser product literature and installation details refer to www.weyerhaeuser.com/woodproducts/document-library.

The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

Level roof, WC6.3.4

1 piece(s) 5 1/4" x 7" 1.8E Parallam® PSL (Plank)

Wall Height: 14' 1 1/2" Member Height: 13' 9" Tributary Width: 1'



Drawing is Conceptual

Design Results	Actual	Allowed	Result	LDF	Load: Combination
Slenderness	27	50	Passed (53%)	--	--
Compression (lbs)	9367	36764	Passed (25%)	1.15	1.0 D + 1.0 S
Plate Bearing (lbs)	9367	22969	Passed (41%)	--	1.0 D + 1.0 S
Lateral Reaction (lbs)	0	--	--	--	N/A
Lateral Shear (lbs)	0	N/A	Passed (N/A)	--	N/A
Lateral Moment (ft-lbs)	0 @ mid-span	N/A	Passed (N/A)	--	N/A
Total Deflection (in)	0.28 @ mid-span	0.69	Passed (L/584)	--	1.0 D + 1.0 S
Bending/Compression	0.42	1	Passed (42%)	1.15	1.0 D + 1.0 S

- Wall deflection criteria: TL (L/240)
- Input axial load eccentricity for this design is 50.00% of applicable member side dimension.
- Applicable calculations are based on NDS.

Supports	Type	Material
Top	Dbl 2X	Douglas Fir-Larch
Base	2X	Douglas Fir-Larch

System : Wall
Member Type : Column
Building Code : IBC 2021
Design Methodology : ASD

Max Unbraced Length	Comments
13' 9"	

Vertical Load	Tributary Width	Dead (0.90)	Roof Live (1.25)	Snow (1.15)	Comments
1 - Point (lb)	N/A	2207	1500	7160	

Weyerhaeuser Notes

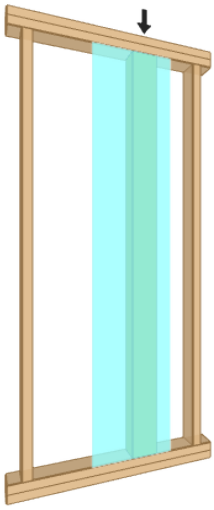
Weyerhaeuser warrants that the sizing of its products will be in accordance with Weyerhaeuser product design criteria and published design values. Weyerhaeuser expressly disclaims any other warranties related to the software. Use of this software is not intended to circumvent the need for a design professional as determined by the authority having jurisdiction. The designer of record, builder or framer is responsible to assure that this calculation is compatible with the overall project. Accessories (Rim Board, Blocking Panels and Squash Blocks) are not designed by this software. Products manufactured at Weyerhaeuser facilities are third-party certified to sustainable forestry standards. Weyerhaeuser Engineered Lumber Products have been evaluated by ICC-ES under evaluation reports ESR-1153 and ESR-1387 and/or tested in accordance with applicable ASTM standards. For current code evaluation reports, Weyerhaeuser product literature and installation details refer to www.weyerhaeuser.com/woodproducts/document-library.

The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

Level roof, WC6.5.1:SE

4 piece(s) 2 x 6 DF No.2

Wall Height: 9' Member Height: 8' 6" Tributary Width: 1'



Drawing is Conceptual

Design Results	Actual	Allowed	Result	LDF	Load: Combination
Slenderness	19	50	Passed (37%)	--	--
Compression (lbs)	15990	24348	Passed (66%)	1.15	1.0 D + 1.0 S
Plate Bearing (lbs)	15990	20625	Passed (78%)	--	1.0 D + 1.0 S
Lateral Reaction (lbs)	64	--	--	1.60	1.0 D + 0.6 W
Lateral Shear (lbs)	57	6336	Passed (1%)	1.60	1.0 D + 0.6 W
Lateral Moment (ft-lbs)	136 @ mid-span	4701	Passed (3%)	1.60	1.0 D + 0.6 W
Total Deflection (in)	0.07 @ mid-span	0.85	Passed (L/1388)	--	1.0 D + 1.0 S
Bending/Compression	1.03	1	Failed (103%)	1.15	1.0 D + 1.0 S

- Wall deflection criteria: TL (L/120)
- Input axial load eccentricity for this design is 16.67% of applicable member side dimension.
- Applicable calculations are based on NDS.
- Bearing shall be on a metal plate or strap, or on other equivalently durable, rigid, homogeneous material with sufficient stiffness to distribute applied load.
- The column stability factor (Kf = 0.6) applied to this design assumes nailed built-up columns per NDS section 15.3.3. For Weyerhaeuser ELP products refer to the U.S. Wall Guide for multiple-member connection requirements.

Supports	Type	Material
Top	Dbl 2X	Douglas Fir-Larch
Base	Dbl 2X	Douglas Fir-Larch

System : Wall
Member Type : Column
Building Code : IBC 2021
Design Methodology : ASD

Max Unbraced Length	Comments
8'	

Lateral Connections

Supports	Connector	Type/Model	Quantity	Connector Nailing
Top	Nails	8d (0.113" x 2 1/2") (Toe)	2	N/A
Base	Nails	8d (0.113" x 2 1/2") (Toe)	2	N/A

- Nailed connection at the top of the member is assumed to be nailed through the bottom 2x plate prior to placement of the top 2x of the double top plate assembly.

Vertical Load	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
1 - Point (lb)	N/A	4876	280	11114	Default Load

Lateral Load	Location	Tributary Width	Wind (1.60)	Comments
1 - Uniform (PSF)	Full Length	1'	25.1	

- ASCE/SEI 7 Sec. 30.4: Exposure Category (B), Mean Roof Height (33'), Topographic Factor (1.0), Wind Directionality Factor (0.85), Basic Wind Speed (115), Risk Category(II), Wind Zone (4), GCpi (+/- 0.18), Effective Wind Area determined using full member span and trib. width.
- IBC Table 1604.3, footnote f: Deflection checks are performed using 42% of this lateral wind load.

Weyerhaeuser Notes

Weyerhaeuser warrants that the sizing of its products will be in accordance with Weyerhaeuser product design criteria and published design values. Weyerhaeuser expressly disclaims any other warranties related to the software. Use of this software is not intended to circumvent the need for a design professional as determined by the authority having jurisdiction. The designer of record, builder or framer is responsible to assure that this calculation is compatible with the overall project. Accessories (Rim Board, Blocking Panels and Squash Blocks) are not designed by this software. Products manufactured at Weyerhaeuser facilities are third-party certified to sustainable forestry standards. Weyerhaeuser Engineered Lumber Products have been evaluated by ICC-ES under evaluation reports ESR-1153 and ESR-1387 and/or tested in accordance with applicable ASTM standards. For current code evaluation reports, Weyerhaeuser product literature and installation details refer to www.weyerhaeuser.com/woodproducts/document-library.

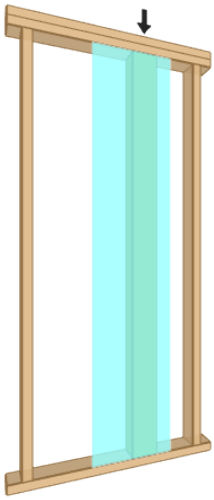
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Cameron Gill-Cox KL&A (720) 361-1275 cgillcox@klaa.com	

Level roof, WC6.5.2:SE

3 piece(s) 2 x 6 DF No.2

Wall Height: 9' 3" Member Height: 8' 10 1/2" Tributary Width: 1'



Drawing is Conceptual

Design Results	Actual	Allowed	Result	LDF	Load: Combination
Slenderness	21	50	Passed (43%)	--	--
Compression (lbs)	4562	12891	Passed (35%)	1.15	1.0 D + 1.0 S
Plate Bearing (lbs)	4562	10519	Passed (43%)	--	1.0 D + 1.0 S
Lateral Reaction (lbs)	67	--	--	1.60	1.0 D + 0.6 W
Lateral Shear (lbs)	60	4752	Passed (1%)	1.60	1.0 D + 0.6 W
Lateral Moment (ft-lbs)	148 @ mid-span	3513	Passed (4%)	1.60	1.0 D + 0.6 W
Total Deflection (in)	0.04 @ mid-span	0.89	Passed (L/2807)	--	1.0 D + 0.45 W + 0.75 L + 0.75 S
Bending/Compression	0.29	1	Passed (29%)	1.15	1.0 D + 1.0 S

- Wall deflection criteria: TL (L/120)
- Input axial load eccentricity for this design is 16.67% of applicable member side dimension.
- Applicable calculations are based on NDS.
- The column stability factor (Kf = 0.6) applied to this design assumes nailed built-up columns per NDS section 15.3.3. For Weyerhaeuser ELP products refer to the U.S. Wall Guide for multiple-member connection requirements.

Supports	Type	Material
Top	Dbl 2X	Spruce-Pine-Fir
Base	2X	Spruce-Pine-Fir

System : Wall
Member Type : Column
Building Code : IBC 2021
Design Methodology : ASD

Max Unbraced Length	Comments
8'	

Lateral Connections

Supports	Connector	Type/Model	Quantity	Connector Nailing
Top	Nails	8d (0.113" x 2 1/2") (Toe)	2	N/A
Base	Nails	8d (0.113" x 2 1/2") (Toe)	2	N/A

- Nailed connection at the top of the member is assumed to be nailed through the bottom 2x plate prior to placement of the top 2x of the double top plate assembly.

Vertical Load	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
1 - Point (lb)	N/A	1603	280	2959	Default Load

Lateral Load	Location	Tributary Width	Wind (1.60)	Comments
1 - Uniform (PSF)	Full Length	1'	25.0	

- ASCE/SEI 7 Sec. 30.4: Exposure Category (B), Mean Roof Height (33'), Topographic Factor (1.0), Wind Directionality Factor (0.85), Basic Wind Speed (115), Risk Category(II), Wind Zone (4), GCpi (+/- 0.18), Effective Wind Area determined using full member span and trib. width.
- IBC Table 1604.3, footnote f: Deflection checks are performed using 42% of this lateral wind load.

Weyerhaeuser Notes

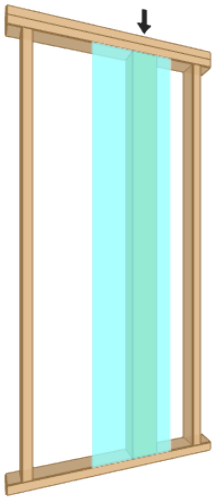
Weyerhaeuser warrants that the sizing of its products will be in accordance with Weyerhaeuser product design criteria and published design values. Weyerhaeuser expressly disclaims any other warranties related to the software. Use of this software is not intended to circumvent the need for a design professional as determined by the authority having jurisdiction. The designer of record, builder or framer is responsible to assure that this calculation is compatible with the overall project. Accessories (Rim Board, Blocking Panels and Squash Blocks) are not designed by this software. Products manufactured at Weyerhaeuser facilities are third-party certified to sustainable forestry standards. Weyerhaeuser Engineered Lumber Products have been evaluated by ICC-ES under evaluation reports ESR-1153 and ESR-1387 and/or tested in accordance with applicable ASTM standards. For current code evaluation reports, Weyerhaeuser product literature and installation details refer to www.weyerhaeuser.com/woodproducts/document-library.

The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

General Calcs, SPH1.1

2 piece(s) 2 x 6 DF No.2

Wall Height: 9' Member Height: 8' 7 1/2" Tributary Width: 1'



Drawing is Conceptual

Design Results	Actual	Allowed	Result	LDF	Load: Combination
Slenderness	32	50	Passed (64%)	--	--
Compression (lbs)	4116	4314	Passed (95%)	1.15	1.0 D + 0.75 L + 0.75 S
Plate Bearing (lbs)	4116	7013	Passed (59%)	--	1.0 D + 0.75 L + 0.75 S
Lateral Reaction (lbs)	65	--	--	1.60	1.0 D + 0.6 W
Lateral Shear (lbs)	58	3168	Passed (2%)	1.60	1.0 D + 0.6 W
Lateral Moment (ft-lbs)	140 @ mid-span	2313	Passed (6%)	1.60	1.0 D + 0.6 W
Total Deflection (in)	0.02 @ mid-span	0.86	Passed (L/5252)	--	1.0 D + 0.6 W
Bending/Compression	0.93	1	Passed (93%)	1.60	1.0 D + 0.45 W + 0.75 L + 0.75 S

- Wall deflection criteria: TL (L/120)
- Input axial load eccentricity for the design is zero
- Applicable calculations are based on NDS.
- The column stability factor (Kf = 0.6) applied to this design assumes nailed built-up columns per NDS section 15.3.3. For Weyerhaeuser ELP products refer to the U.S. Wall Guide for multiple-member connection requirements.

Supports	Type	Material
Top	Dbl 2X	Spruce-Pine-Fir
Base	2X	Spruce-Pine-Fir

System : Wall
Member Type : Column
Building Code : IBC 2021
Design Methodology : ASD

Max Unbraced Length	Comments
8'	

Lateral Connections

Supports	Connector	Type/Model	Quantity	Connector Nailing
Top	Nails	8d (0.113" x 2 1/2") (Toe)	2	N/A
Base	Nails	8d (0.113" x 2 1/2") (Toe)	2	N/A

- Nailed connection at the top of the member is assumed to be nailed through the bottom 2x plate prior to placement of the top 2x of the double top plate assembly.

Vertical Loads	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
1 - Point (lb)	N/A	420	390	--	LEVEL 3
2 - Point (lb)	N/A	420	390	--	LEVEL 4
3 - Point (lb)	N/A	420	390	--	LEVEL 5
4 - Point (lb)	N/A	644	--	1779	ROOF

Lateral Load	Location	Tributary Width	Wind (1.60)	Comments
1 - Uniform (PSF)	Full Length	1'	25.1	

- ASCE/SEI 7 Sec. 30.4: Exposure Category (B), Mean Roof Height (33'), Topographic Factor (1.0), Wind Directionality Factor (0.85), Basic Wind Speed (115), Risk Category(II), Wind Zone (4), GCpi (+/- 0.18), Effective Wind Area determined using full member span and trib. width.
- IBC Table 1604.3, footnote f: Deflection checks are performed using 42% of this lateral wind load.

Weyerhaeuser Notes

Weyerhaeuser warrants that the sizing of its products will be in accordance with Weyerhaeuser product design criteria and published design values. Weyerhaeuser expressly disclaims any other warranties related to the software. Use of this software is not intended to circumvent the need for a design professional as determined by the authority having jurisdiction. The designer of record, builder or framer is responsible to assure that this calculation is compatible with the overall project. Accessories (Rim Board, Blocking Panels and Squash Blocks) are not designed by this software. Products manufactured at Weyerhaeuser facilities are third-party certified to sustainable forestry standards. Weyerhaeuser Engineered Lumber Products have been evaluated by ICC-ES under evaluation reports ESR-1153 and ESR-1387 and/or tested in accordance with applicable ASTM standards. For current code evaluation reports, Weyerhaeuser product literature and installation details refer to www.weyerhaeuser.com/woodproducts/document-library.

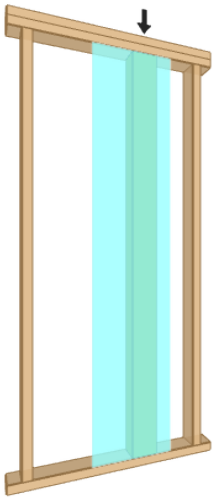
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Cameron Gill-Cox KL&A (720) 361-1275 cgillcox@klaa.com	

General Calcs, SPH3.1: King Studs

3 piece(s) 2 x 6 DF No.2

Wall Height: 9' Member Height: 8' 7 1/2" Tributary Width: 1'



Drawing is Conceptual

Design Results	Actual	Allowed	Result	LDF	Load: Combination
Slenderness	21	50	Passed (43%)	--	--
Compression (lbs)	8721	12891	Passed (68%)	1.15	1.0 D + 0.75 L + 0.75 S
Plate Bearing (lbs)	8721	15469	Passed (56%)	--	1.0 D + 0.75 L + 0.75 S
Lateral Reaction (lbs)	65	--	--	1.60	1.0 D + 0.6 W
Lateral Shear (lbs)	58	4752	Passed (1%)	1.60	1.0 D + 0.6 W
Lateral Moment (ft-lbs)	140 @ mid-span	3513	Passed (4%)	1.60	1.0 D + 0.6 W
Total Deflection (in)	0.01 @ mid-span	0.86	Passed (L/7879)	--	1.0 D + 0.6 W
Bending/Compression	0.44	1	Passed (44%)	1.60	1.0 D + 0.45 W + 0.75 L + 0.75 S

- Wall deflection criteria: TL (L/120)
- Input axial load eccentricity for the design is zero
- Applicable calculations are based on NDS.
- The column stability factor (Kf = 0.6) applied to this design assumes nailed built-up columns per NDS section 15.3.3. For Weyerhaeuser ELP products refer to the U.S. Wall Guide for multiple-member connection requirements.

Supports	Type	Material
Top	Dbl 2X	Douglas Fir-Larch
Base	2X	Douglas Fir-Larch

System : Wall
Member Type : Column
Building Code : IBC 2021
Design Methodology : ASD

Max Unbraced Length	Comments
8'	

Lateral Connections

Supports	Connector	Type/Model	Quantity	Connector Nailing
Top	Nails	8d (0.113" x 2 1/2") (Toe)	2	N/A
Base	Nails	8d (0.113" x 2 1/2") (Toe)	2	N/A

- Nailed connection at the top of the member is assumed to be nailed through the bottom 2x plate prior to placement of the top 2x of the double top plate assembly.

Vertical Loads	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
1 - Point (lb)	N/A	1178	1000	--	level 3
2 - Point (lb)	N/A	1178	1000	--	level 4
3 - Point (lb)	N/A	1178	1000	--	level 5
4 - Point (lb)	N/A	946	--	2655	

Lateral Load	Location	Tributary Width	Wind (1.60)	Comments
1 - Uniform (PSF)	Full Length	1'	25.1	

- ASCE/SEI 7 Sec. 30.4: Exposure Category (B), Mean Roof Height (33'), Topographic Factor (1.0), Wind Directionality Factor (0.85), Basic Wind Speed (115), Risk Category(II), Wind Zone (4), GCpi (+/- 0.18), Effective Wind Area determined using full member span and trib. width.
- IBC Table 1604.3, footnote f: Deflection checks are performed using 42% of this lateral wind load.

Weyerhaeuser Notes

Weyerhaeuser warrants that the sizing of its products will be in accordance with Weyerhaeuser product design criteria and published design values. Weyerhaeuser expressly disclaims any other warranties related to the software. Use of this software is not intended to circumvent the need for a design professional as determined by the authority having jurisdiction. The designer of record, builder or framer is responsible to assure that this calculation is compatible with the overall project. Accessories (Rim Board, Blocking Panels and Squash Blocks) are not designed by this software. Products manufactured at Weyerhaeuser facilities are third-party certified to sustainable forestry standards. Weyerhaeuser Engineered Lumber Products have been evaluated by ICC-ES under evaluation reports ESR-1153 and ESR-1387 and/or tested in accordance with applicable ASTM standards. For current code evaluation reports, Weyerhaeuser product literature and installation details refer to www.weyerhaeuser.com/woodproducts/document-library.

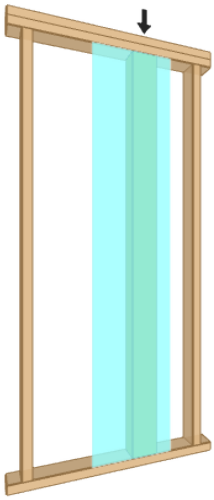
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Cameron Gill-Cox KL&A (720) 361-1275 cgillcox@klaa.com	

General Calcs, SPH3.2: King Studs

3 piece(s) 2 x 6 DF No.2

Wall Height: 9' Member Height: 8' 7 1/2" Tributary Width: 1'



Drawing is Conceptual

Design Results	Actual	Allowed	Result	LDF	Load: Combination
Slenderness	21	50	Passed (43%)	--	--
Compression (lbs)	7331	12891	Passed (57%)	1.15	1.0 D + 0.75 L + 0.75 S
Plate Bearing (lbs)	7331	15469	Passed (47%)	--	1.0 D + 0.75 L + 0.75 S
Lateral Reaction (lbs)	65	--	--	1.60	1.0 D + 0.6 W
Lateral Shear (lbs)	58	4752	Passed (1%)	1.60	1.0 D + 0.6 W
Lateral Moment (ft-lbs)	140 @ mid-span	3513	Passed (4%)	1.60	1.0 D + 0.6 W
Total Deflection (in)	0.01 @ mid-span	0.86	Passed (L/7879)	--	1.0 D + 0.6 W
Bending/Compression	0.32	1	Passed (32%)	1.60	1.0 D + 0.45 W + 0.75 L + 0.75 S

- Wall deflection criteria: TL (L/120)
- Input axial load eccentricity for the design is zero
- Applicable calculations are based on NDS.
- The column stability factor (Kf = 0.6) applied to this design assumes nailed built-up columns per NDS section 15.3.3. For Weyerhaeuser ELP products refer to the U.S. Wall Guide for multiple-member connection requirements.

Supports	Type	Material
Top	Dbl 2X	Douglas Fir-Larch
Base	2X	Douglas Fir-Larch

System : Wall
Member Type : Column
Building Code : IBC 2021
Design Methodology : ASD

Max Unbraced Length	Comments
8'	

Lateral Connections

Supports	Connector	Type/Model	Quantity	Connector Nailing
Top	Nails	8d (0.113" x 2 1/2") (Toe)	2	N/A
Base	Nails	8d (0.113" x 2 1/2") (Toe)	2	N/A

- Nailed connection at the top of the member is assumed to be nailed through the bottom 2x plate prior to placement of the top 2x of the double top plate assembly.

Vertical Loads	Tributary Width	Dead (0.90)	Floor Live (1.00)	Roof Live (1.25)	Snow (1.15)	Comments
1 - Point (lb)	N/A	2980	821	770	2410	level 5/roof
2 - Point (lb)	N/A	1178	1000	--	--	level 4

Lateral Load	Location	Tributary Width	Wind (1.60)	Comments
1 - Uniform (PSF)	Full Length	1'	25.1	

- ASCE/SEI 7 Sec. 30.4: Exposure Category (B), Mean Roof Height (33'), Topographic Factor (1.0), Wind Directionality Factor (0.85), Basic Wind Speed (115), Risk Category(II), Wind Zone (4), GCpi (+/- 0.18), Effective Wind Area determined using full member span and trib. width.
- IBC Table 1604.3, footnote f: Deflection checks are performed using 42% of this lateral wind load.

Weyerhaeuser Notes

Weyerhaeuser warrants that the sizing of its products will be in accordance with Weyerhaeuser product design criteria and published design values. Weyerhaeuser expressly disclaims any other warranties related to the software. Use of this software is not intended to circumvent the need for a design professional as determined by the authority having jurisdiction. The designer of record, builder or framer is responsible to assure that this calculation is compatible with the overall project. Accessories (Rim Board, Blocking Panels and Squash Blocks) are not designed by this software. Products manufactured at Weyerhaeuser facilities are third-party certified to sustainable forestry standards. Weyerhaeuser Engineered Lumber Products have been evaluated by ICC-ES under evaluation reports ESR-1153 and ESR-1387 and/or tested in accordance with applicable ASTM standards. For current code evaluation reports, Weyerhaeuser product literature and installation details refer to www.weyerhaeuser.com/woodproducts/document-library.

The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Cameron Gill-Cox KL&A (720) 361-1275 cgillcox@klaa.com	

402. BASE PLATE DESIGN

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Base Plate

Project File: basecamp ii.ec6

LIC# : KW-06017163, Build:20.26.02.18 KL&A, INC. (c) ENERCALC, LLC 1982-2026

DESCRIPTION: BP1

Code References

Governing Code : IBC 2024
Referenced Design Standard(s) : AISC Design Guide # 1, AISC 360-22
Load Combination Set : ASCE 7-22 / IBC 2024

General Information

Material Properties

AISC Design Method	Load Resistance Factor Design		Φ c : LRFD Resistance Factor	0.65
Steel Plate Fy	=	50.0 ksi		
Concrete Support f'c	=	4.0 ksi		
Assumed Bearing Area :	Full Bearing			

Column & Plate

Column Properties

Steel Section	HSS5x5x1/4		
Depth	5 in	Area	4.3 in^2
Width	5 in	Ixx	in^4
Flange Thickness	0.233 in	Iyy	in^4
Web Thicknes	in		

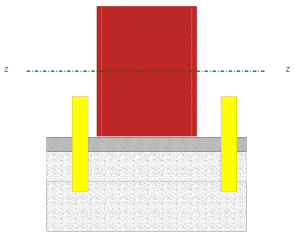
Plate Dimensions

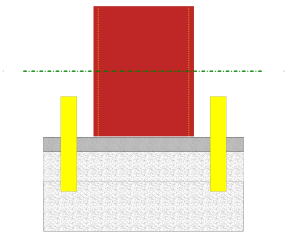
N : Length	10.0 in
B : Width	10.0 in
Thickness	0.750 in

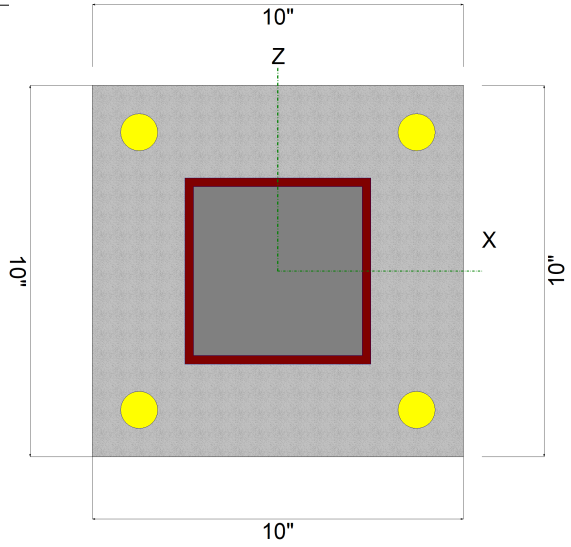
Support Dimensions

Width along "X"	10.0 in
Length along "Z'	10.0 in

Column assumed welded to base plat



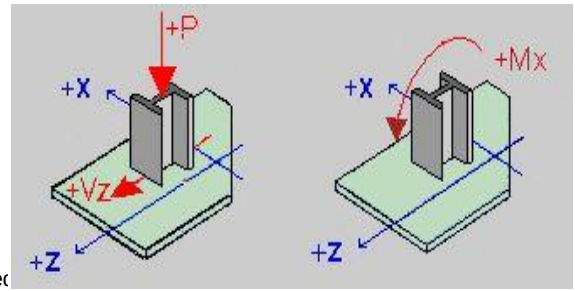




Applied Loads

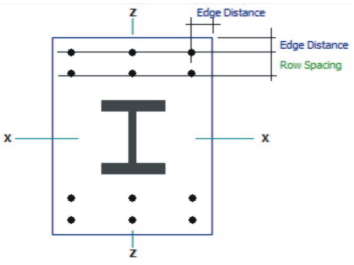
	P-Y	V-Z	M-X
D : Dead Load	26.410 k	k	k-ft
L : Live	21.740 k	k	k-ft
Lr : Roof Live	k	k	k-ft
S : Snow	k	k	k-ft
W : Wind	k	k	k-ft
E : Earthquake	k	k	k-ft
H : Lateral Earth	k	k	k-ft

" P " = Gravity load, "+" sign is downward "+" Moments create higher soil pressure at +Z ed
"+" Shears push plate towards +Z edge



Anchor Bolts

Anchor Bolt or Rod Description	1 1/2"	
Max of Tension or Pullout Capacity.....		k
Shear Capacity.....		k
Edge distance : bolt to plate.....	1.25	in
Number of Bolts in each Row.....	2.0	
Number of Bolt Rows.....	1	



Project Title:
Engineer:
Project ID:
Project Descr:

Steel Base Plate

Project File: basecamp ii.ec6

LIC# : KW-06017163, Build:20.26.02.18 KL&A, INC. (c) ENERCALC, LLC 1982-2026

DESCRIPTION: BP1

GOVERNING DESIGN LOAD CASE SUMMARY

Plate Design Summary

Design Method	**Load Resistance Factor Design**
Governing Load Combinat	**+1.20D+1.60L**
Governing Load Case Typ	**Axial Load Only**
Governing STRESS RATI	**0.3619**
Design Plate Size	**10" x 10" x 0 -3/4"**

Pu : Axial	66.476	k
Mu : Moment	0	k-ft

Mu : Max. Moment	2.290	k-in
fb : Max. Bending Stress	16.287	ksi
Fb : Allowable : Fy * Φ	45.000	ksi
Bending Stress Rati	0.362	
	Bending Stress OK	
fu : Max. Concrete Bearing Stress	0.665	ksi
ΦBn :	2.21	ksi
Bearing Stress Ratio	0.301	
	Bearing Stress OK	

Load Comb. : +1.40D

Axial Load Only, No Moment

Loading

Pu : Axial	36.974	k
Design Plate Height	10.000	in
Design Plate Width	10.000	in
Will be different from entry if partial bearing used.		
A1 : Plate Area	100.000	in^2
A2: Support Area	100.000	in^2
sqrt(A2/A1)	1.000	

Distance for Moment Calculation

" m "	2.625	in
" n "	2.625	in
X	0.000	in^2
Lambda	0.000	
n'	0.000	in
n' * Lambda	0.000	in
L = max(m, n, n'')	2.625	in

Bearing Stresses

ΦBn	2.210	ksi
fu : Max. Bearing Pressure	0.370	ksi
Stress Ratio	**0.167**	

Plate Bending Stresses

Mmax = Fu * L^2 / 2	1.274	k-in on 1" strip
fb : Actual	9.059	ksi
Fb : Allowable	45.000	ksi
Stress Ratio	**0.201**	

Load Comb. : +1.20D+1.60L

Axial Load Only, No Moment

Loading

Pu : Axial	66.476	k
Design Plate Height	10.000	in
Design Plate Width	10.000	in
Will be different from entry if partial bearing used.		
A1 : Plate Area	100.000	in^2
A2: Support Area	100.000	in^2
sqrt(A2/A1)	1.000	

Distance for Moment Calculation

" m "	2.625	in
" n "	2.625	in
X	0.000	in^2
Lambda	0.000	
n'	0.000	in
n' * Lambda	0.000	in
L = max(m, n, n'')	2.625	in

Bearing Stresses

ΦBn	2.210	ksi
fu : Max. Bearing Pressure	0.665	ksi
Stress Ratio	**0.301**	

Plate Bending Stresses

Mmax = Fu * L^2 / 2	2.290	k-in on 1" strip
fb : Actual	16.287	ksi
Fb : Allowable	45.000	ksi
Stress Ratio	**0.362**	

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Base Plate

Project File: basecamp ii.ec6

DESCRIPTION: BP1

Load Comb. : +1.20D+L

Axial Load Only, No Moment

Loading			Bearing Stresses	
Pu : Axial	53.432	k	ΦBn	2.210 ksi
Design Plate Height	10.000	in	fu : Max. Bearing Pressure	0.534 ksi
Design Plate Width	10.000	in	**Stress Ratio**	**0.242**
Will be different from entry if partial bearing used.			Plate Bending Stresses	
A1 : Plate Area	100.000	in^2	Mmax = Fu * L^2 / 2	1.841 k-in on 1" strip
A2: Support Area	100.000	in^2	fb : Actual	13.091 ksi
sqrt(A2/A1)	1.000		Fb : Allowable	45.000 ksi
			Stress Ratio	**0.291**
Distance for Moment Calculation				
" m "	2.625	in		
" n "	2.625	in		
X	0.000	in^2		
Lambda	0.000			
n'	0.000	in		
n' * Lambda	0.000	in		
L = max(m, n, n")	2.625	in		

Load Comb. : +1.20D

Axial Load Only, No Moment

Loading			Bearing Stresses	
Pu : Axial	31.692	k	ΦBn	2.210 ksi
Design Plate Height	10.000	in	fu : Max. Bearing Pressure	0.317 ksi
Design Plate Width	10.000	in	**Stress Ratio**	**0.143**
Will be different from entry if partial bearing used.			Plate Bending Stresses	
A1 : Plate Area	100.000	in^2	Mmax = Fu * L^2 / 2	1.092 k-in on 1" strip
A2: Support Area	100.000	in^2	fb : Actual	7.765 ksi
sqrt(A2/A1)	1.000		Fb : Allowable	45.000 ksi
			Stress Ratio	**0.173**
Distance for Moment Calculation				
" m "	2.625	in		
" n "	2.625	in		
X	0.000	in^2		
Lambda	0.000			
n'	0.000	in		
n' * Lambda	0.000	in		
L = max(m, n, n")	2.625	in		

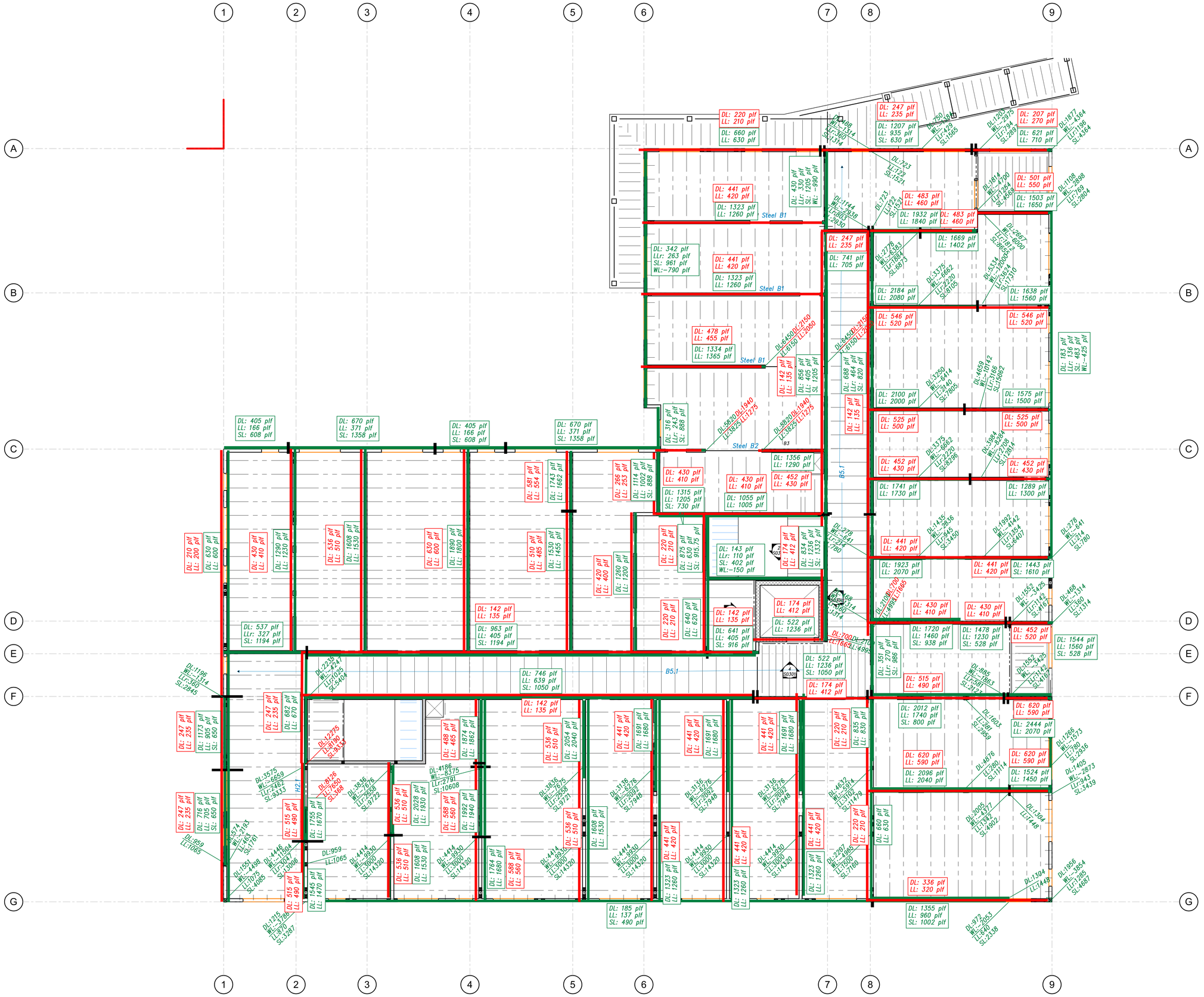
Load Comb. : +0.90D

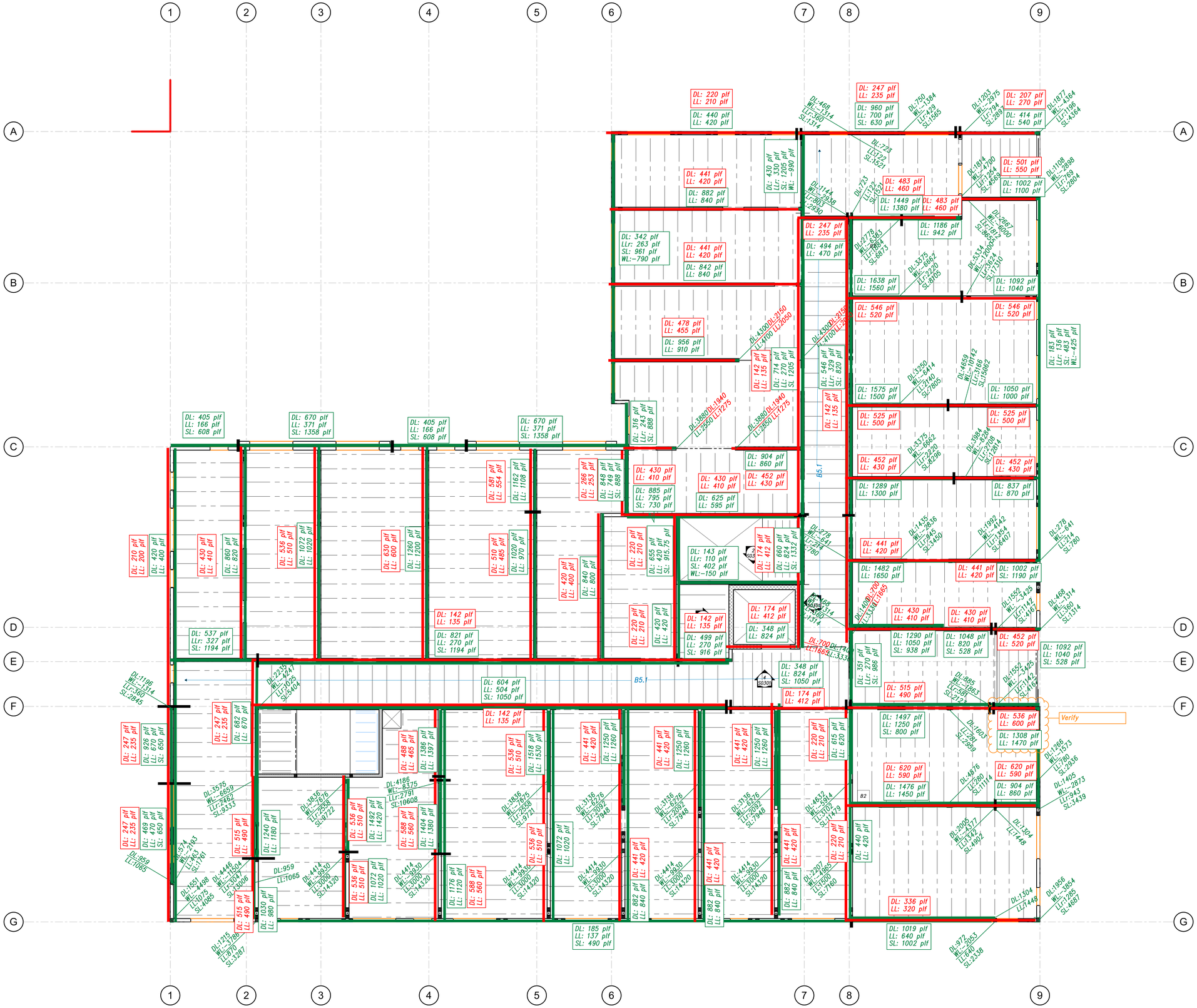
Axial Load Only, No Moment

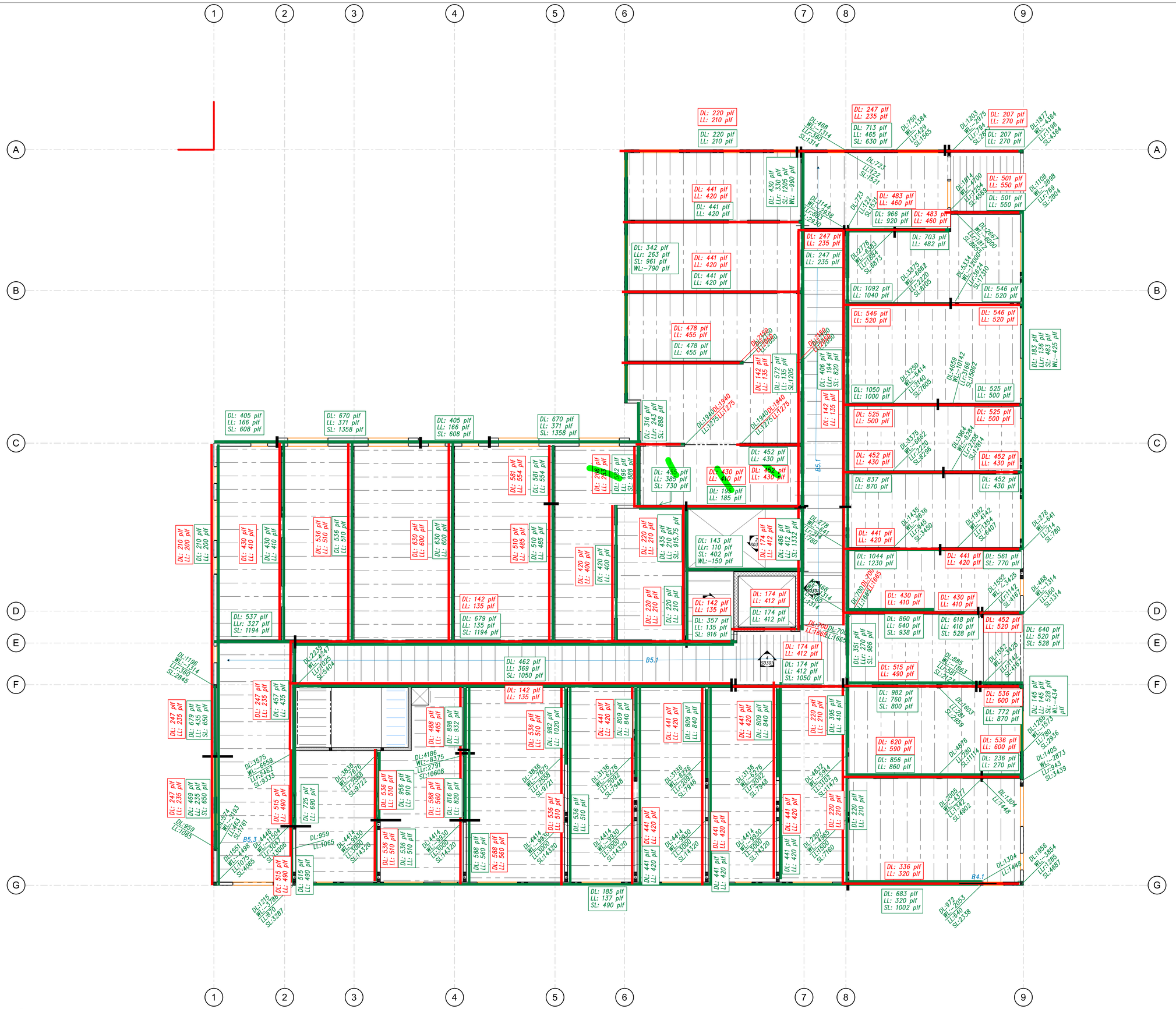
Loading			Bearing Stresses	
Pu : Axial	23.769	k	ΦBn	2.210 ksi
Design Plate Height	10.000	in	fu : Max. Bearing Pressure	0.238 ksi
Design Plate Width	10.000	in	**Stress Ratio**	**0.108**
Will be different from entry if partial bearing used.			Plate Bending Stresses	
A1 : Plate Area	100.000	in^2	Mmax = Fu * L^2 / 2	0.819 k-in on 1" strip
A2: Support Area	100.000	in^2	fb : Actual	5.823 ksi
sqrt(A2/A1)	1.000		Fb : Allowable	45.000 ksi
			Stress Ratio	**0.129**
Distance for Moment Calculation				
" m "	2.625	in		
" n "	2.625	in		
X	0.000	in^2		
Lambda	0.000			
n'	0.000	in		
n' * Lambda	0.000	in		
L = max(m, n, n")	2.625	in		

403. WALL NUMBERING KEY PLANS

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
DL: 880 plf
LL: 840 plf
DL: 1454 plf
LL: 1170 plf
SL: 630 plf
DL: 828 plf
LL: 980 plf
DL: 2004 plf
LL: 2200 plf
DL: 2415 plf
LL: 2300 plf
DL: 2152 plf
LL: 1862 plf
DL: 2184 plf
LL: 2080 plf
DL: 2730 plf
LL: 2600 plf
DL: 2625 plf
LL: 2500 plf
DL: 2100 plf
LL: 2000 plf
DL: 2193 plf
LL: 2160 plf
DL: 1741 plf
LL: 1730 plf
DL: 2364 plf
LL: 2490 plf
DL: 1884 plf
SL: 2030 plf
DL: 2150 plf
LL: 1870 plf
SL: 938 plf
DL: 1908 plf
LL: 1640 plf
SL: 528 plf
DL: 1996 plf
LL: 2080 plf
SL: 528 plf
DL: 2527 plf
LL: 2230 plf
SL: 800 plf
DL: 3064 plf
LL: 2660 plf
DL: 2716 plf
LL: 2630 plf
DL: 2144 plf
LL: 2040 plf
DL: 880 plf
LL: 840 plf
DL: 1691 plf
LL: 1280 plf
SL: 1002 plf
DL: 405 plf
LL: 166 plf
SL: 608 plf
DL: 670 plf
LL: 371 plf
SL: 1358 plf
DL: 1380 plf
LL: 1255 plf
SL: 888 plf
DL: 1745 plf
LL: 1615 plf
SL: 730 plf
DL: 1485 plf
LL: 1415 plf
DL: 1680 plf
LL: 1600 plf
DL: 1095 plf
LL: 840 plf
SL: 915.75 plf
DL: 1008 plf
LL: 1648 plf
SL: 1332 plf
DL: 143 plf
LLr: 110 plf
SL: 402 plf
WL:-150 plf
DL: 783 plf
LL: 540 plf
SL: 916 plf
DL: 696 plf
LL: 1648 plf
DL: 840 plf
LL: 800 plf
DL: 1720 plf
LL: 1640 plf
DL: 2144 plf
LL: 2040 plf
DL: 2520 plf
LL: 2400 plf
DL: 2040 plf
LL: 1940 plf
DL: 537 plf
LLr: 327 plf
SL: 1194 plf
DL: 1105 plf
LL: 540 plf
SL: 1194 plf
DL: 888 plf
LL: 774 plf
SL: 1050 plf
B5.1
DL: 696 plf
LL: 1648 plf
SL: 1050 plf
DL: 1420 plf
LL: 1140 plf
SL: 650 plf
DL: 929 plf
LL: 905 plf
DL: 963 plf
LL: 940 plf
SL: 650 plf
DL: 2270 plf
LL: 2160 plf
DL: 2144 plf
LL: 2040 plf
DL: 2060 plf
LL: 1960 plf
DL: 2144 plf
LL: 2040 plf
DL: 2352 plf
LL: 2240 plf
DL: 2144 plf
LL: 2040 plf
DL: 1764 plf
LL: 1680 plf
DL: 1764 plf
LL: 1680 plf
DL: 1764 plf
LL: 1680 plf
DL: 185 plf
LL: 137 plf
SL: 490 plf
DL: 988 plf
LL: 940 plf
SL: 1205 plf
DL: 830 plf
LL: 599 plf
SL: 820 plf
DL: 316 plf
LLr: 243 plf
SL: 888 plf
DL: 2324 plf
LL: 2218 plf
DL: 2144 plf
LL: 2040 plf
DL: 2580 plf
LL: 2500 plf
DL: 2144 plf
LL: 2040 plf
DL: 2132 plf
LL: 2100 plf
DL: 2132 plf
LL: 2100 plf
DL: 2132 plf
LL: 2100 plf
DL: 2590 plf
LL: 2550 plf
DL: 2362 plf
LL: 2322 plf
DL: 1275 plf
LL: 1260 plf
DL: 183 plf
LLr: 136 plf
SL: 483 plf
WL:-425 plf
DL: 840 plf
LL: 800 plf
DL: 1640 plf
LL: 1560 plf
DL: 2144 plf
LL: 2040 plf
DL: 2160 plf
LL: 2060


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
Steel B1
Steel B2
B3
B5.1
B2.1
B2.2
B3.1
B3.2
B3.3
B3.4
B3.5
B3.6
B3.7
B3.8
B3.9
B3.10
B3.11
B3.12
B3.13
B3.14
B3.15
B3.16
B3.17
B3.18
B3.19
B3.20
B3.21
B3.22
B3.23
B3.24
B3.25
B3.26
B3.27
B3.28
B3.29
B3.30
B3.31
B3.32
B3.33
B3.34
B3.35
B3.36
B3.37
B3.38
B3.39
B3.40
B3.41
B3.42
B3.43
B3.44
B3.45
B3.46
B3.47
B3.48
B3.49


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
B5.1
B5.1
B5.1



1 SXX6 **LOAD TRACKING LEVEL 4**

3/16" = 1'-0"

1/27/2026 11:05:45 AM

403-5

KL&A
Engineers & Builders
1717 Washington Avenue
Golden, Colorado 80401
(303) 384 9910

©20XX KL&A, INC

THE STRUCTURAL ENGINEERS SEAL ON THIS DRAWING INDICATES THAT THE INFORMATION SHOWN AND THE CALCULATIONS PERTAINING TO THAT INFORMATION HAVE BEEN PREPARED BY QUALIFIED PEOPLE UNDER THE DIRECTION OF THE ENGINEER-OF-RECORD. THE SEAL DOES NOT IMPLY RESPONSIBILITY FOR INFORMATION PREPARED BY OTHERS NOR FOR ANY INFORMATION NOT SHOWN ON THIS DRAWING AND SUCH RESPONSIBILITY IS SPECIFICALLY DISCLAIMED. ON PHASED PROJECTS, DRAWINGS THAT ARE ISSUED BUT NOT SEALED SHALL BE CONSIDERED TO BE PRELIMINARY IN NATURE AND ARE ISSUED FOR INFORMATION ONLY.

THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS ON THE PROJECT TO CLEARLY DEFINE ALL OF THE REQUIREMENTS FOR THE CONSTRUCTION. WHERE CONFLICTS OCCUR CONTACT ARCHITECT FOR CLARIFICATION.

ISSUE:
PROJECT STATUS

PRELIMINARY - NOT FOR CONSTRUCTION

THESE DRAWINGS ARE INCOMPLETE AND ARE MISSING INFORMATION THEY ARE INTENDED FOR PRELIMINARY USE ONLY

STEAMBOAT BASECAMP II

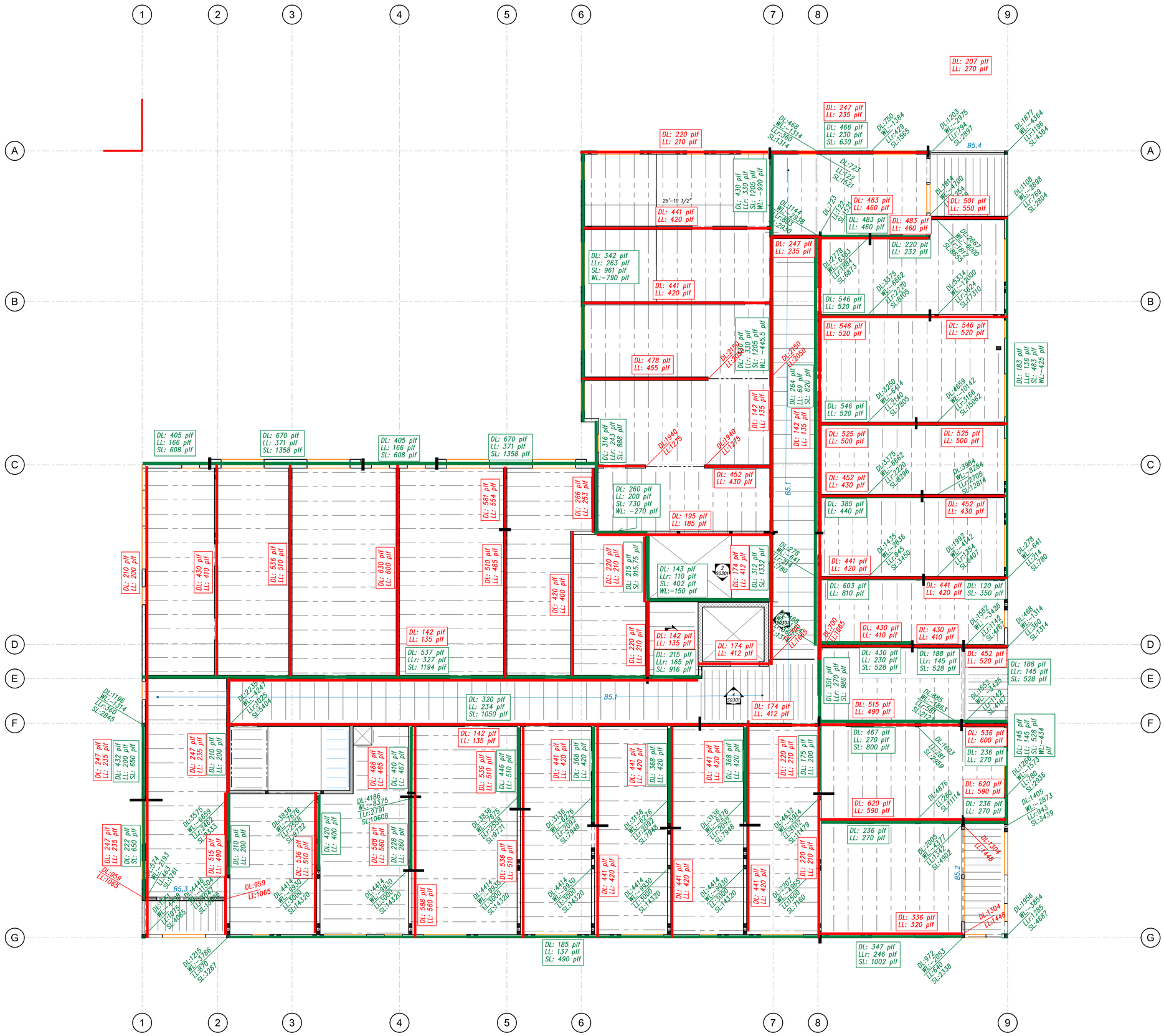
STEAMBOAT
BASECAMP, LOT 2
STEAMBOAT
SPRINGS, CO 80487

PROJECT NO:
DRAWN BY: Author
CHECKED BY: Checker
REVISIONS:

SHEET TITLE:

Load Track Level 4

SXX6



1 SXX7 **LOAD TRACKING LEVEL 5**

3/16" = 1'-0"

1/27/2026 11:05:47 AM

403-6

KL&A
Engineers & Builders
1717 Washington Avenue
Golden, Colorado 80401
(303) 384 9910

©20XX KL&A, INC

THE STRUCTURAL ENGINEERS SEAL ON THIS DRAWING INDICATES THAT THE INFORMATION SHOWN AND THE CALCULATIONS PERTAINING TO THAT INFORMATION HAVE BEEN PREPARED BY QUALIFIED PEOPLE UNDER THE DIRECTION OF THE ENGINEER-OF-RECORD. THE SEAL DOES NOT IMPLY RESPONSIBILITY FOR INFORMATION PREPARED BY OTHERS NOR FOR ANY INFORMATION NOT SHOWN ON THIS DRAWING AND SUCH RESPONSIBILITY IS SPECIFICALLY DISCLAIMED. ON PHASED PROJECTS, DRAWINGS THAT ARE ISSUED BUT NOT SEALED SHALL BE CONSIDERED TO BE PRELIMINARY IN NATURE AND ARE ISSUED FOR INFORMATION ONLY.

THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS ON THE PROJECT TO CLEARLY DEFINE ALL OF THE REQUIREMENTS FOR THE CONSTRUCTION. WHERE CONFLICTS OCCUR CONTACT ARCHITECT FOR CLARIFICATION.

ISSUE:
PROJECT STATUS

PRELIMINARY - NOT FOR CONSTRUCTION

THESE DRAWINGS ARE INCOMPLETE AND ARE MISSING INFORMATION THEY ARE INTENDED FOR PRELIMINARY USE ONLY

STEAMBOAT BASECAMP II

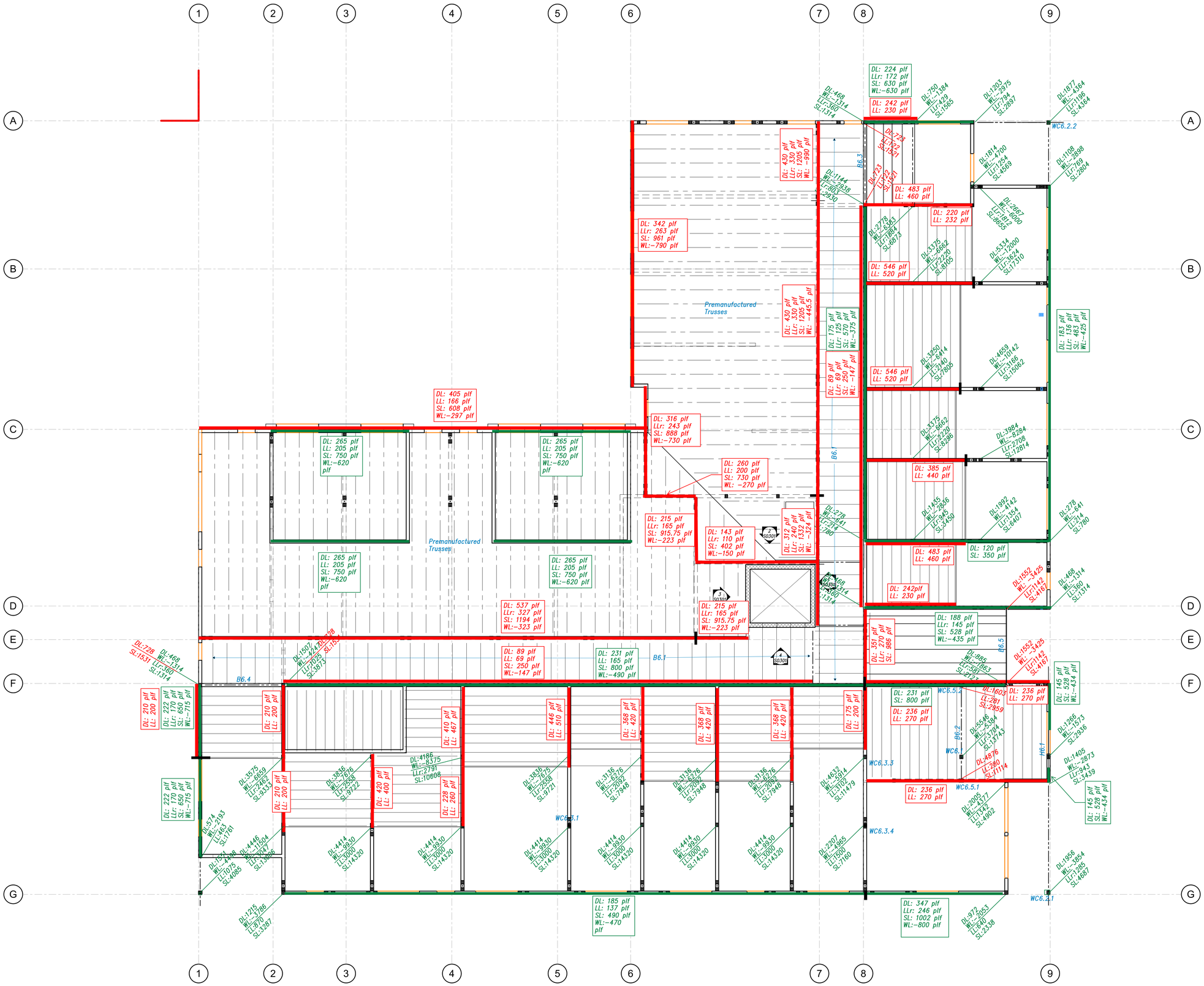
STEAMBOAT
BASECAMP, LOT 2
STEAMBOAT
SPRINGS, CO 80487

PROJECT NO:
DRAWN BY: Author
CHECKED BY: Checker
REVISIONS:

SHEET TITLE:

Load Track Level 5

SXX7



1 SXX8 **LOAD TRACKING ROOF**

3/16" = 1'-0"

1/27/2026 11:05:48 AM

KL&A
Engineers & Builders
1717 Washington Avenue
Golden, Colorado 80401
(303) 384 9910

©20XX KL&A, INC

THE STRUCTURAL ENGINEERS SEAL ON THIS DRAWING INDICATES THAT THE INFORMATION SHOWN AND THE CALCULATIONS PERTAINING TO THAT INFORMATION HAVE BEEN PREPARED BY QUALIFIED PEOPLE UNDER THE DIRECTION OF THE ENGINEER-OF-RECORD. THE SEAL DOES NOT IMPLY RESPONSIBILITY FOR INFORMATION PREPARED BY OTHERS NOR FOR ANY INFORMATION NOT SHOWN ON THIS DRAWING AND SUCH RESPONSIBILITY IS SPECIFICALLY DISCLAIMED. ON PHASED PROJECTS, DRAWINGS THAT ARE ISSUED BUT NOT SEALED SHALL BE CONSIDERED TO BE PRELIMINARY IN NATURE AND ARE ISSUED FOR INFORMATION ONLY.

THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS ON THE PROJECT TO CLEARLY DEFINE ALL OF THE REQUIREMENTS FOR THE CONSTRUCTION. WHERE CONFLICTS OCCUR CONTACT ARCHITECT FOR CLARIFICATION.

ISSUE:
PROJECT STATUS

PRELIMINARY - NOT FOR CONSTRUCTION

THESE DRAWINGS ARE INCOMPLETE AND ARE MISSING INFORMATION THEY ARE INTENDED FOR PRELIMINARY USE ONLY

STEAMBOAT BASECAMP II

STEAMBOAT
BASECAMP, LOT 2
STEAMBOAT
SPRINGS, CO 80487

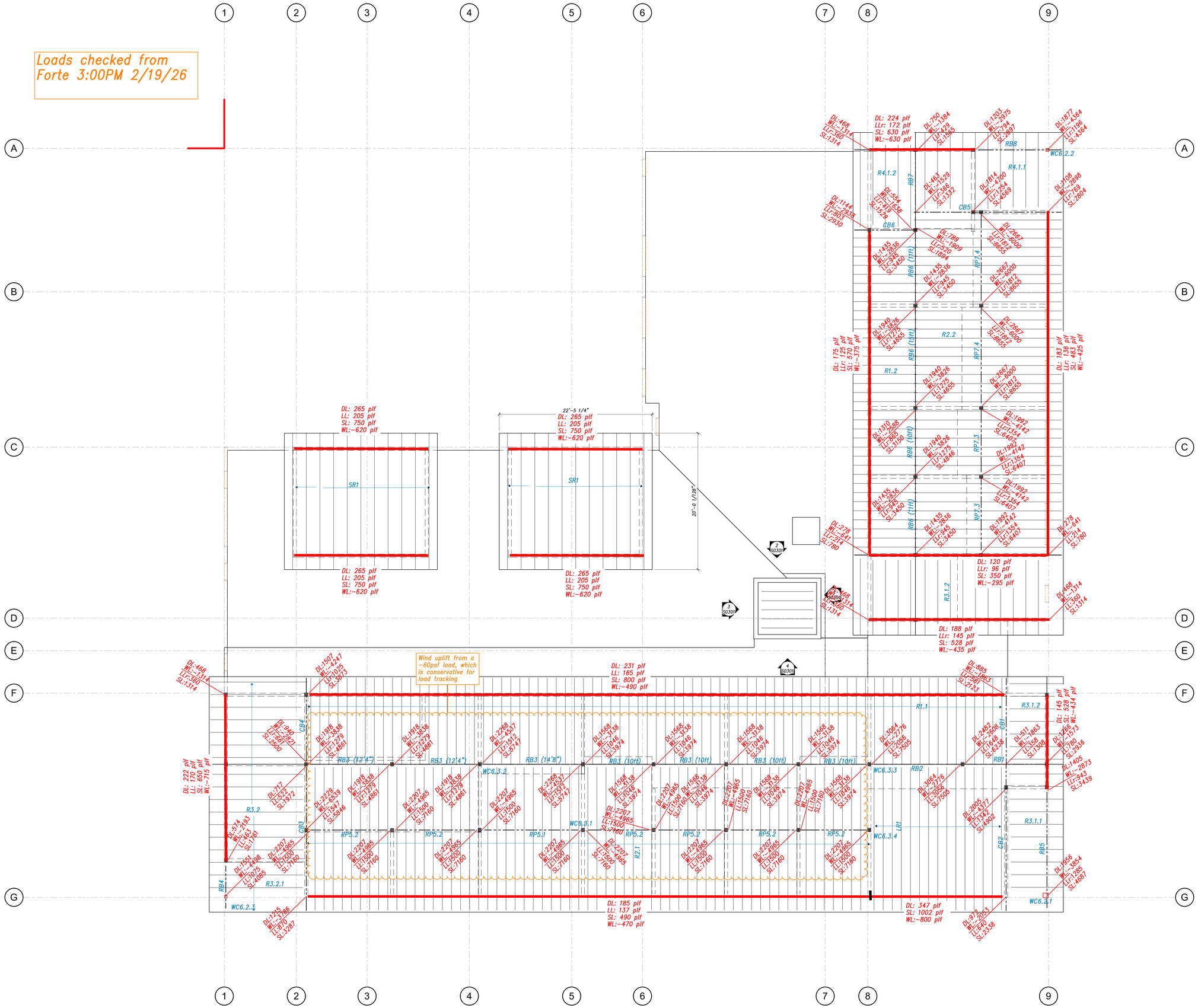
PROJECT NO:
DRAWN BY: Author
CHECKED BY: Checker
REVISIONS:

SHEET TITLE:

Load Track Level Roof

SXX8

Loads checked from
Forte 3:00PM 2/19/26



1 SXX9 **LOAD TRACKING HIGH ROOF**

3/16" = 1'-0"

1/27/2026 11:05:49 AM

403-8

KL&A
Engineers & Builders
1717 Washington Avenue
Golden, Colorado 80401
(303) 384 9910

©20XX KL&A, INC

THE STRUCTURAL ENGINEERS SEAL ON THIS DRAWING INDICATES THAT THE INFORMATION SHOWN AND THE CALCULATIONS PERTAINING TO THAT INFORMATION HAVE BEEN PREPARED BY QUALIFIED PEOPLE UNDER THE DIRECTION OF THE ENGINEER-OF-RECORD. THE SEAL DOES NOT IMPLY RESPONSIBILITY FOR INFORMATION PREPARED BY OTHERS NOR FOR ANY INFORMATION NOT SHOWN ON THIS DRAWING AND SUCH RESPONSIBILITY IS SPECIFICALLY DISCLAIMED. ON PHASED PROJECTS, DRAWINGS THAT ARE ISSUED BUT NOT SEALED SHALL BE CONSIDERED TO BE PRELIMINARY IN NATURE AND ARE ISSUED FOR INFORMATION ONLY.

THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS ON THE PROJECT TO CLEARLY DEFINE ALL OF THE REQUIREMENTS FOR THE CONSTRUCTION. WHERE CONFLICTS OCCUR CONTACT ARCHITECT FOR CLARIFICATION.

ISSUE:
PROJECT STATUS

PRELIMINARY - NOT FOR CONSTRUCTION

THESE DRAWINGS ARE INCOMPLETE AND ARE MISSING INFORMATION THEY ARE INTENDED FOR PRELIMINARY USE ONLY

STEAMBOAT BASECAMP II

STEAMBOAT
BASECAMP, LOT 2
STEAMBOAT
SPRINGS, CO 80487

PROJECT NO:
DRAWN BY: Author
CHECKED BY: Checker
REVISIONS:
1 Date 1 Revision 1

SHEET TITLE:

Load Track Level High Roof

SXX9

404. WALL DESIGN SUMMARY

KL&A Engineers & Builders

Project: Basecamp II
Proj #: 20xxx
Engineer: CGC
Date: 1/5/2026

Wall Load Input Data

Basecamp II: Wall loads

The purpose of this spreadsheet is the track wall loads and eccentricity of loads for input into the wall load spreadsheet.

For each wall type a maximum wall load is identified based on the worst case. Loads are then calculated for each level.

Note Snow Load is assumed to control over Roof Live Load.

Loads: Typical Tributary Area Loads

Load Key #	Type	DL	LL	SL	Notes
		psf	psf	psf	
1	Res Floor	42	40	0	
2	typical balcony	46	60	0	
3	Typical Roof	26	0	73	
4	Stair/commons	40	100	0	
5	Mezzanine	30	40	0	

Cladding Loads:

Type	DL	eccentricity	height	Notes
	psf	in	ft	
Metal paneling	5	0	8	applies moment at height on wall

Details of framing conditions for calculation of eccentricty

Type	Eccentricity		Stud size	Notes
	Floor Loads	Above Loads		

KL&A Engineers & Builders

Project: Basecamp II
Proj #: 20xxx
Engineer: CGC
Date: 1/5/2026

Wall Load Input Data

	in	in		
Double Plate	0	0	2x6	typ ext wall
Triple Plate	0	0	2x6	Unit Demising wall
Quad Plate	0	0	2x6	Corridor Wall

Details of framing conditions for calculation of plate bending and shear

KL&A, Inc.
Structural Engineers and Builders

Project: Basecamp II
Proj #: 20xxx
Engineer: CGC
Date: 1/5/2026

Wall Design Summary

Design	Base Level	Studs @ Spacing	D/C Ratios Stud	Plate	FRW St.	Defl.	Remarks
Wall W1 Design	Level 1	2x6 @ 12" OC	0.74	0.81	0.80	L/1617	
	Level 2	2x6 @ 12" OC	0.63	0.88	0.57	L/1756	
	Level 3	2x6 @ 16" OC	0.70	0.99	0.69	L/1317	
	Level 4	2x6 @ 16" OC	0.60	0.83	0.47	L/1317	
	Level 5	2x6 @ 16" OC	0.51	0.98	0.34	L/1317	
Wall W2 Design	Level 1	(2)2x6 @ 12" OC	0.55	0.88	0.48	L/106775	
	Level 2	2x6 @ 12" OC	0.87	0.91	1.26	L/53387	
	Level 3	2x6 @ 12" OC	0.64	0.83	0.65	L/53387	
	Level 4	2x6 @ 16" OC	0.55	0.78	0.49	L/40040	
	Level 5	2x6 @ 16" OC	0.25	0.55	0.19	L/40040	
Wall W3 Design	Level 1	2x6 @ 16" OC	0.83	1.00	0.83	L/40040	
	Level 2	2x6 @ 16" OC	0.67	0.83	0.69	L/43471	
	Level 3	2x6 @ 16" OC	0.59	0.93	0.49	L/43471	
	Level 4	2x6 @ 16" OC	0.51	0.81	0.36	L/43471	
	Level 5	2x6 @ 16" OC	0.43	0.95	0.23	L/43471	

KL&A, Inc.
Structural Engineers and Builders

Project: Basecamp II
Proj #: 20xxx
Engineer: CGC
Date: 1/5/2026

Wall Design Summary

Soil Capacities	(psf)
Minimum Dead Load Pressure	0
Maximum Allowable Bearing	3000
Max. Allowable (Wind/Earthquake)	3000

Footing Schedule	width (ft)	thick (ft)
CF1	2.5	1
CF2	2	1.333
CF3	1.5	1.3333
CF4	1.333	5.5
SONO	1.76	5

Stem Walls	Conc Vol (ft^3/ft)	Conc Type	Addnl DL (plf)	Remarks
SW1	2.42	NWC	410	
NULL	0	NWC	0	NULL WALL

Design	Footing Selection	Stem Wall Selection	Addnl DL (plf)	Wall loads: DL + ___ (plf) (none)	L	S	.75(L+S)	Bearing (psf) min	max	D/C ratios min	max	Remarks
Wall W1 Design	CF2	SW1	1172.9	2975	4535	3997	4911	1487	2455.7		0.8186	
Wall W2 Design	CF1	SW1	1148	4138	7238	4138	6463	1655	2895.2		0.9651	
Wall W3 Design	CF2	SW1	1172.9	2562	4162	3766	4665	1281	2332.64		0.7775	
Wall W4 Design	CF2	NULL	399.9						0		0	
Wall W5 Design	CF2	NULL	399.9						0		0	
Wall W6 Design	CF2	NULL	399.9						0		0	
Wall W7 Design	CF1	SW1	1148						0		0	
Wall W8 Design	CF1	SW1	1148						0		0	
Wall W9 Design	CF1	SW1	1148						0		0	
Wall W6 Design	CF4	NULL	1099.73						0		0	
Canopy Column	SONO	NULL	1320						0		0	
<blank line>												

KL&A Engineers & Builders

Project: Basecamp II
Proj #: 20xxx
Engineer: CGC
Date: 1/5/2026

Wall Design - Wall 1 - Unit Interior wall

Wall Basic Data

Typical exterior wall with roof bearng
Has FRT treatment

Wall location	external

plate grade	dfl-No2
stud grade	dfl-No2

	Level 1	Level 2	Level 3	Level 4	Level 5	Roof
stud height (ft)	9.25	9	9	9	9	
stud spacing (in)	12	12	16	16	16	
# of studs	1	1	1	1	1	
stud size	2x6	2x6	2x6	2x6	2x6	
Fire Rated Wall?	TRUE	TRUE	TRUE	TRUE	TRUE	
Fire Retardant Treatment?	TRUE	TRUE	TRUE	TRUE	TRUE	
Cf bending (stud)	1.30	1.30	1.30	1.30	1.30	
Cf compression (stud)	1.10	1.10	1.10	1.10	1.10	
Cf bending (plate)	1.30	1.30	1.30	1.30	1.30	
Cfu*Cr (plate)	1.32	1.32	1.32	1.32	1.32	
floor joist spacing	24	24	24	24	24	
le/d	20.18	19.64	19.64	19.64	19.64	
D/C studs	0.74	0.63	0.70	0.60	0.51	
D/C plates	0.81	0.88	0.99	0.83	0.98	
D/C studs - FRW Wall	0.80	0.57	0.69	0.47	0.34	
wind deflection - l/	1618	1756	1317	1317	1317	

Typical Loads - Tributary load per level

Load Type	Level 2 ft	Level 3 ft	Level 4 ft	Level 5 ft	Roof ft
Res Floor	6	6	6	6	0
typical balcony	0	0	0	0	0
Typical Roof	0	0	0	0	14
Stair/commons	0	0	0	0	6
Mezzanine					

Wall Design - Wall 1 - Unit Interior wall

Cladding Loads - Tributary load per level

Type	Level 2 ft	Level 3 ft	Level 4 ft	Level 5 ft	Roof ft
Metal paneling	9.25	9.25	9.25	9.25	1

Summary Loading

	Level 1 plf	Level 2 plf	Level 3 plf	Level 4 plf	Level 5 plf
DL	1612	1360	1108	856	604
LL	1560	1320	1080	840	600
SL	1022	1022	1022	1022	1022
Cladding	190	143.75	97.5	51.25	5

Determine Top and Bottom Load eccentricity due to framing conditions

		Level 1	Level 2	Level 3	Level 4	Level 5
Top	Top Condition	Triple Plate	Triple Plate	Triple Plate	Triple Plate	Triple Plate
	Ecc Floor Loads(in)	0	0	0	0	0
	Ecc Above Loads (in)	0	0	0	0	0
Bot	Bot Condition	Double Plate	Triple Plate	Triple Plate	Triple Plate	Triple Plate
	Ecc Bottom (in)	0	0	0	0	0

KL&A Engineers & Builders

Project: Basecamp II
Proj #: 20xxx
Engineer: CGC
Date: 1/5/2026

Wall Design - Wall 1 - Unit Interior wall

Wall Basic Data

Wall location	internal

plate grade	dfl-No2
stud grade	dfl-No2

	Level 1	Level 2	Level 3	Level 4	Level 5	Roof
stud height (ft)	9.25	9.25	9.25	9.25	9.25	
stud spacing (in)	12	12	12	16	16	
# of studs	2	1	1	1	1	
stud size	2x6	2x6	2x6	2x6	2x6	
Fire Rated Wall?	FALSE	FALSE	FALSE	FALSE	FALSE	
Fire Retardant Treatment?	FALSE	FALSE	FALSE	FALSE	FALSE	
Cf bending (stud)	1.30	1.30	1.30	1.30	1.30	
Cf compression (stud)	1.10	1.10	1.10	1.10	1.10	
Cf bending (plate)	1.30	1.30	1.30	1.30	1.30	
Cfu*Cr (plate)	1.32	1.32	1.32	1.32	1.32	
floor joist spacing	24	24	24	24	24	
le/d	20.18	20.18	20.18	20.18	20.18	
D/C studs	0.55	0.87	0.64	0.55	0.25	
D/C plates	0.88	0.91	0.83	0.78	0.55	
D/C studs - FRW Wall	0.48	1.26	0.66	0.49	0.19	
wind deflection - l/	106776	53388	53388	40041	40041	

Typical Loads - Tributary load per level

Load Type	Level 2 ft	Level 3 ft	Level 4 ft	Level 5 ft	Roof ft
Res Floor	15	15	15	15	0
typical balcony	0	0	0	0	0
Typical Roof	0	0	0	0	0
Stair/commons	0	0	0	0	7
Mezzanine					

Wall Design - Wall 1 - Unit Interior wall

Cladding Loads - Tributary load per level

Type	Level 2 ft	Level 3 ft	Level 4 ft	Level 5 ft	Roof ft
Metal paneling	9.25	9.25	9.25	9.25	1

Summary Loading

	Level 1 plf	Level 2 plf	Level 3 plf	Level 4 plf	Level 5 plf
DL	2800	2170	1540	910	280
LL	3100	2500	1900	1300	700
SL	0	0	0	0	0
Cladding	190	143.75	97.5	51.25	5

Determine Top and Bottom Load eccentricity due to framing conditions

		Level 1	Level 2	Level 3	Level 4	Level 5
Top	Top Condition	Quad Plate	Triple Plate	Triple Plate	Triple Plate	Double Plate
	Ecc Floor Loads(in)	0	0	0	0	0
	Ecc Above Loads (in)	0	0	0	0	0
Bot	Bot Condition	Double Plate	Quad Plate	Triple Plate	Triple Plate	Triple Plate
	Ecc Bottom (in)	0	0	0	0	0

KL&A Engineers & Builders

Project: Basecamp II
Proj #: 20xxx
Engineer: CGC
Date: 1/5/2026

Wall Design - Wall 1 - Unit Interior wall

Wall Basic Data

Wall location	Corridor
	internal

plate grade	dfl-No2
stud grade	dfl-No2

	Level 1	Level 2	Level 3	Level 4	Level 5	Roof
stud height (ft)	9.25	9	9	9	9	
stud spacing (in)	16	16	16	16	16	
# of studs	1	1	1	1	1	
stud size	2x6	2x6	2x6	2x6	2x6	
Fire Rated Wall?	FALSE	FALSE	FALSE	FALSE	FALSE	
Fire Retardant Treatment?	FALSE	FALSE	FALSE	FALSE	FALSE	
Cf bending (stud)	1.30	1.30	1.30	1.30	1.30	
Cf compression (stud)	1.10	1.10	1.10	1.10	1.10	
Cf bending (plate)	1.30	1.30	1.30	1.30	1.30	
Cfu*Cr (plate)	1.32	1.32	1.32	1.32	1.32	
floor joist spacing	24	24	24	24	24	
le/d	20.18	19.64	19.64	19.64	19.64	
D/C studs	0.83	0.67	0.59	0.51	0.43	
D/C plates	1.00	0.83	0.93	0.81	0.95	
D/C studs - FRW Wall	0.83	0.69	0.49	0.36	0.23	
wind deflection - l/	40041	43471	43471	43471	43471	

Typical Loads - Tributary load per level

Load Type	Level 2 ft	Level 3 ft	Level 4 ft	Level 5 ft	Roof ft
Res Floor	1	1	1	1	1
typical balcony	0	0	0	0	0
Typical Roof	0	0	0	0	16.5
Stair/commons	3.5	3.5	3.5	3.5	0
Mezzanine					

Wall Design - Wall 1 - Unit Interior wall

Cladding Loads - Tributary load per level

Type	Level 2 ft	Level 3 ft	Level 4 ft	Level 5 ft	Roof ft
Metal paneling	9.25	9.25	9.25	9.25	1

Summary Loading

	Level 1 plf	Level 2 plf	Level 3 plf	Level 4 plf	Level 5 plf
DL	1199	1017	835	653	471
LL	1600	1210	820	430	40
SL	1204.5	1204.5	1204.5	1204.5	1204.5
Cladding	190	143.75	97.5	51.25	5

Determine Top and Bottom Load eccentricity due to framing conditions

		Level 1	Level 2	Level 3	Level 4	Level 5
Top	Top Condition	Triple Plate	Triple Plate	Double Plate	Double Plate	Double Plate
	Ecc Floor Loads(in)	0	0	0	0	0
	Ecc Above Loads (in)	0	0	0	0	0
Bot	Bot Condition	Double Plate	Triple Plate	Triple Plate	Double Plate	Double Plate
	Ecc Bottom (in)	0	0	0	0	0

KL&A Engineers & Builders

Project: Basecamp II
Proj #: 20xxx
Engineer: CGC
Date: 1/5/2026

Wall Design - Wall 1 - Unit Interior wall

Wall Basic Data

Wall location	external

plate grade	dfl-No2
stud grade	dfl-No2

	Level 1	Level 2	Level 3	Level 4	Level 5	Roof
stud height (ft)	9.25	9.25	9.25	9.25	9.25	
stud spacing (in)	16	16	16	16	16	
# of studs	1	1	1	1	1	
stud size	2x6	2x6	2x6	2x6	2x6	
Fire Rated Wall?	FALSE	FALSE	FALSE	FALSE	FALSE	
Fire Retardant Treatment?	FALSE	FALSE	FALSE	FALSE	FALSE	
Cf bending (stud)	1.30	1.30	1.30	1.30	1.30	
Cf compression (stud)	1.10	1.10	1.10	1.10	1.10	
Cf bending (plate)	1.30	1.30	1.30	1.30	1.30	
Cfu*Cr (plate)	1.32	1.32	1.32	1.32	1.32	
floor joist spacing	24	24	24	24	24	
le/d	20.18	20.18	20.18	20.18	20.18	
D/C studs	0.42	0.41	0.40	0.39	0.38	
D/C plates	0.62	0.61	0.59	0.58	0.84	
D/C studs - FRW Wall	0.23	0.24	0.22	0.21	0.19	
wind deflection - l/	1348	1348	1348	1348	1348	

Typical Loads - Tributary load per level

Load Type	Level 2 ft	Level 3 ft	Level 4 ft	Level 5 ft	Roof ft
Res Floor	0	0	0	0	0
typical balcony	0	0	0	0	0
Typical Roof	0	0	0	0	15
Stair/commons	0	0	0	0	0
Mezzanine					

Wall Design - Wall 1 - Unit Interior wall

Cladding Loads - Tributary load per level

Type	Level 2 ft	Level 3 ft	Level 4 ft	Level 5 ft	Roof ft
Metal paneling	9.25	9.25	9.25	9.25	1

Summary Loading

	Level 1 plf	Level 2 plf	Level 3 plf	Level 4 plf	Level 5 plf
DL	390	390	390	390	390
LL	0	0	0	0	0
SL	1095	1095	1095	1095	1095
Cladding	190	143.75	97.5	51.25	5

Determine Top and Bottom Load eccentricity due to framing conditions

		Level 1	Level 2	Level 3	Level 4	Level 5
Top	Top Condition	Double Plate	Double Plate	Double Plate	Double Plate	Double Plate
	Ecc Floor Loads(in)	0	0	0	0	0
	Ecc Above Loads (in)	0	0	0	0	0
Bot	Bot Condition	Double Plate	Double Plate	Double Plate	Double Plate	Double Plate
	Ecc Bottom (in)	0	0	0	0	0

500. LATERAL SYSTEM

Calculation Package

500 Lateral System Calculation Index:

Narrative	500
Wind and Seismic Base Shears and Story forces	501
Main Lateral Force Resisting System Design	502

500. NARRATIVE

Seismic:
The seismic force resisting system was designed per ASCE 7-16. The equivalent lateral force procedure was used to determine design seismic forces. The seismic base shear was calculated using the parameters as indicated in section 100. The building period was determined by the approximate period calculation per ASCE7. Seismic irregularities were checked and no irregularities were found.

Wind:
The wind force resisting system was designed per ASCE 7-16. The directional procedure for buildings of all heights was used to determine design wind forces. The wind base shear was calculated using the parameters as indicated in section 100.

Controlling diaphragm forces have been determined using an in-house spreadsheet. Controlling base shear has been determined using an in-house spreadsheet. Reference Section 501 of these calculations for detailed information regarding calculation of diaphragm and base shear.

The lateral system consists of Reinforced Concrete Masonry Shear Walls and Light Framed Wood Walls sheathed with Structural Panels. The floor diaphragms consist of ¾" plywood sheathing as described in section 300. The roof diaphragm consists of 5/8" plywood sheathing with wood framing acting as collectors and chords as described in section 300.

The main lateral force resisting system was analyzed using an in-house spreadsheet. Floor and Roof diaphragms were analyzed assuming flexible behavior.

501. WIND AND SEISMIC BASE SHEARS AND STORY FORCES

Title	Basecamp II	Date	2 22 26	Job No.	25336
Subject	Lateral Forces	By	CGC	Sheet	of

Wind and Seismic Data

International Building Code: 2021 International Building Code
Governing ASCE: ASCE 7-16
Design Criteria File: 25336_SBBC-II_100_Code-Search_251117

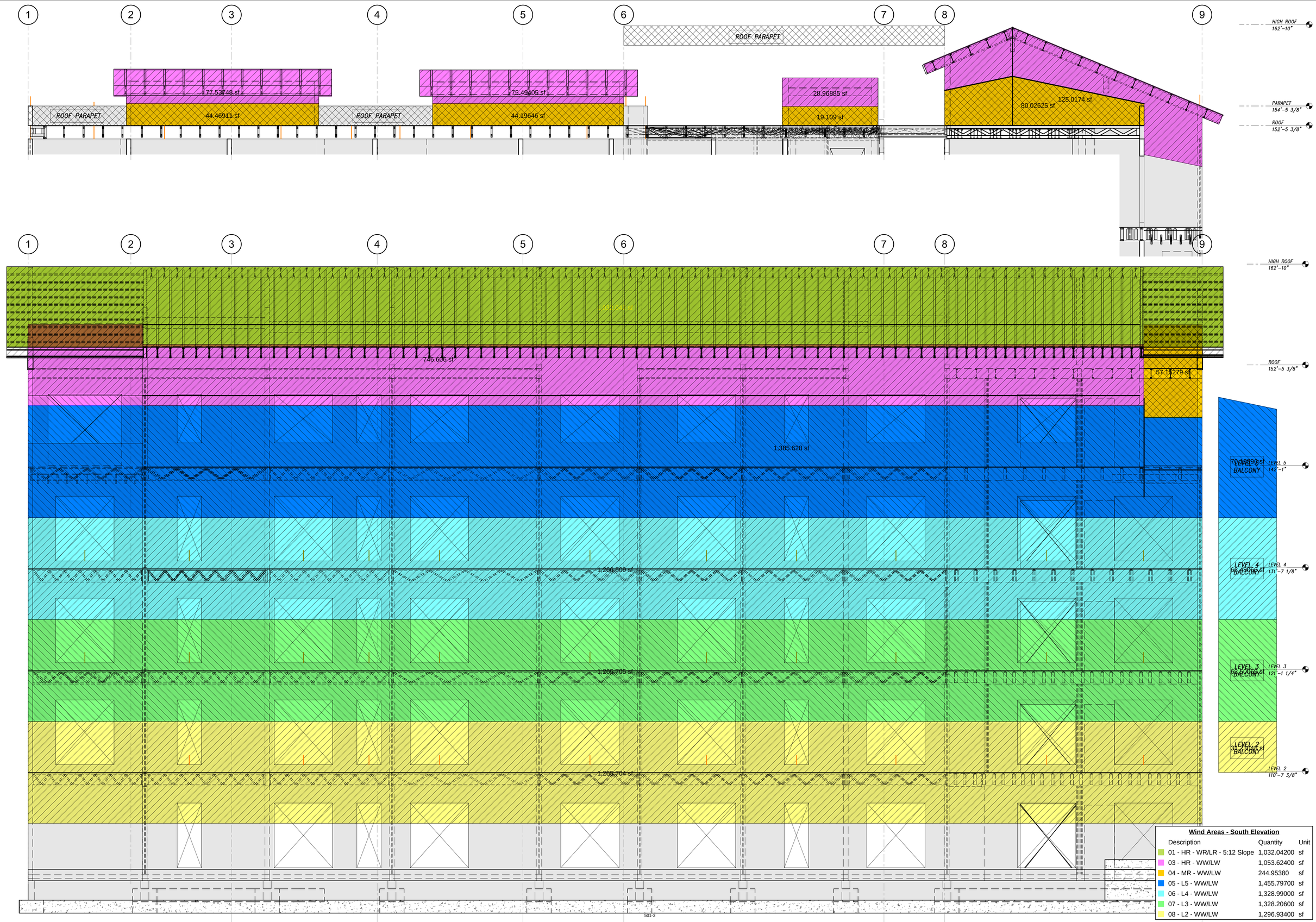
Diaphragm Heights and Wind Pressures

Levels and Diaphragms

Level ID	Level/Diaphragm Name	Height above ground	Windward Pressure (WW) North/South	Windward Pressure (WW) East/West
HR	High Roof	57.7 ft	17.5 psf	17.5 psf
MR	Main Roof	52.5 ft	17.0 psf	17.0 psf
L5	Level 5	42.0 ft	16.2 psf	16.2 psf
L4	Level 4	31.5 ft	15.3 psf	15.3 psf
L3	Level 3	21.0 ft	14.0 psf	14.0 psf
L2	Level 2	10.5 ft	13.0 psf	13.0 psf
L1	GROUND	0 ft		

Wind Loading Data

		North/South			East/West	
Leeward Pressure	LW	10.9	psf	LW	10.9	psf
Interior Pressure	$q_i(GC_{pi})$	4.6	psf	$q_i(GC_{pi})$	4.6	psf
Parapet Windward Pressure	PWW	38.1	psf	PWW	38.1	psf
Parapet Leeward Pressure	PLW	25.4	psf	PLW	25.4	psf
Windward Roof (Normal)	WR	1.9	psf	WR	1.9	psf
Leeward Roof (Normal)	LR	13.1	psf	LR	13.1	psf



Wind Areas - South Elevation

Description	Quantity	Unit
01 - HR - WR/LR - 5:12 Slope	1,032.04200	sf
03 - HR - WW/LW	1,053.62400	sf
04 - MR - WW/LW	244.95380	sf
05 - L5 - WW/LW	1,455.79700	sf
06 - L4 - WW/LW	1,328.99000	sf
07 - L3 - WW/LW	1,328.20600	sf
08 - L2 - WW/LW	1,296.93400	sf

9 8 7 6 5 4 3 2 1

HIGH ROOF BEYOND

388.1728 sf

ROOF WALL BEYOND

393.7981 sf

HIGH ROOF 162'-10"

PARAPET 154'-5 3/8"

ROOF 152'-5 3/8"

66.0397 sf ROOF PARAPET

197.5982 sf

28.96884 sf

75.39883 sf

77.40548 sf

ROOF PARAPET

ROOF PARAPET

663.2764 sf

1,323.32 sf

HIGH ROOF 162'-10"

PARAPET 154'-5 3/8"

ROOF 152'-5 3/8"

LEVEL 5 BALCONY

LEVEL 5 142'-1"

LEVEL 4 BALCONY

1,266.509 sf

LEVEL 4 131'-7 1/8"

LEVEL 3 BALCONY

1,265.705 sf

LEVEL 3 121'-1 1/4"

LEVEL 2 BALCONY

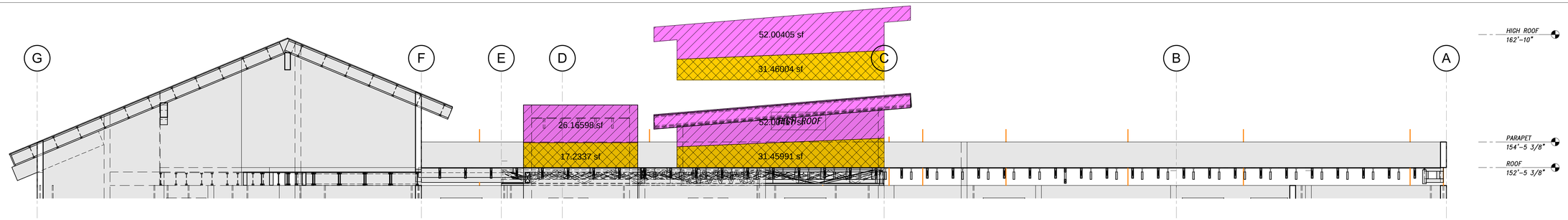
1,265.104 sf

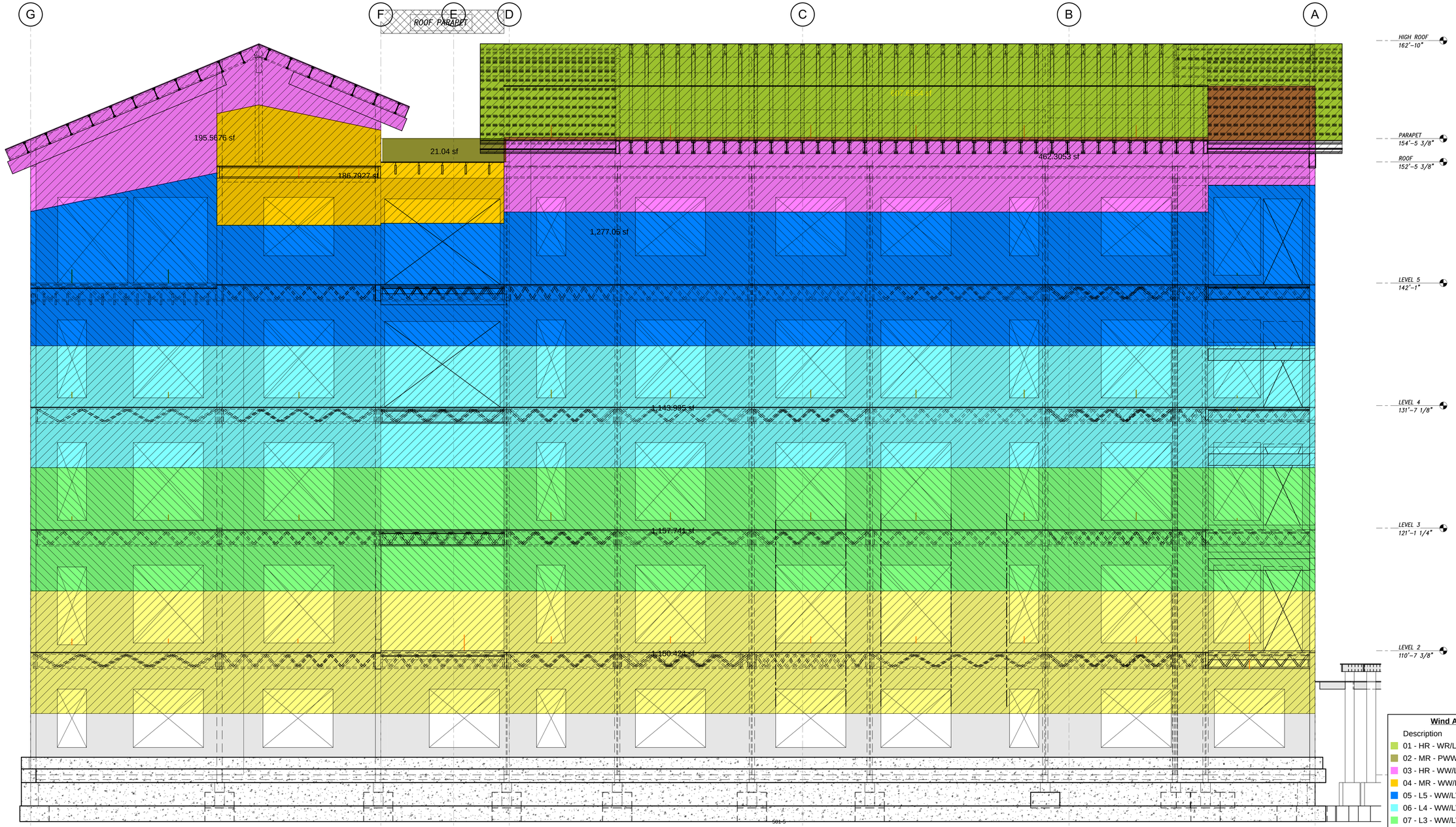
LEVEL 2 110'-7 3/8"

501-4

Wind Areas - North Elevation

Description	Quantity	Unit
01 - HR - WR/LR - 5:12 Slope	707.49600	sf
02 - MR - PWW/PLW	109.60190	sf
03 - HR - WW/LW	767.94510	sf
04 - MR - WW/LW	1,057.07600	sf
05 - L5 - WW/LW	1,384.85600	sf
06 - L4 - WW/LW	1,329.06000	sf
07 - L3 - WW/LW	1,328.11600	sf
08 - L2 - WW/LW	1,297.12800	sf





Wind Areas - East Elevation

Description	Quantity	Unit
01 - HR - WR/LR - 5:12 Slope	607.69540	sf
02 - MR - PWW/PLW	21.04000	sf
03 - HR - WW/LW	788.04720	sf
04 - MR - WW/LW	266.94660	sf
05 - L5 - WW/LW	1,277.05000	sf
06 - L4 - WW/LW	1,143.99500	sf
07 - L3 - WW/LW	1,157.74100	sf
08 - L2 - WW/LW	1,150.42400	sf

A B C F G

ROOF PARAPET 1.334 sf

HIGH ROOF 26.16597 sf

31.46005 sf

HIGH ROOF 31.46003 sf

26.16597 sf

17.2337 sf

291.6055 sf

214.104 sf

737.3257 sf

1,197.379 sf

1,143.9961 sf

1,157.7411 sf

1,150.9191 sf

501.6

HIGH ROOF
162'-10"

ROOF
152'-5 3/8"

LEVEL 5
142'-1"

LEVEL 4
131'-7 1/8"

LEVEL 3
121'-1 1/4"

LEVEL 2
110'-7 3/8"

Wind Areas - West Elevation

Description	Quantity	Unit
01 - HR - WR/LR - 5:12 Slope	279.68240	sf
02 - MR - PWW/PLW	159.69340	sf
03 - HR - WW/LW	636.56510	sf
04 - MR - WW/LW	817.47920	sf
05 - L5 - WW/LW	1,197.37900	sf
06 - L4 - WW/LW	1,143.99600	sf
07 - L3 - WW/LW	1,157.74100	sf
08 - L2 - WW/LW	1,150.42400	sf

Wind Load Calculation - Directional Procedure for Buildings of All Heights

ASCE 7-16, Chapter 27 *All forces are shown as 1.0W*

Definitions

WR: Windward Roof WW: Windward Wall PWW: Parapet Windward Wall

LR: Leeward Roof LW: Leeward Wall PLW: Parapet Leeward Wall

Int: Interior

Direction North/South Roof Slope 5 :12

Level	Elev h	Projected Areas and Pressures												Story Force
		WR - Int		LR + Int		PWW		PLW		WW - Int		LW + Int		
		Trib Area	Wind Pressure	Trib Area	Wind Pressure	Trib Area	Wind Pressure	Trib Area	Wind Pressure	Trib Area	Wind Pressure	Trib Area	Wind Pressure	
	[ft]	[sf]	[psf]	[sf]	[psf]	[sf]	[psf]	[sf]	[psf]	[sf]	[psf]	[sf]	[psf]	[kips]
HR	57.67	708	-1.05	1032	6.82	110	38.10		25.40	768	12.87	1054	6.27	26.98
MR	52.50		-1.05		6.82		38.10		25.40	1058	12.37	245	6.27	14.63
L5	42.00		-1.05		6.82		38.10		25.40	1385	11.57	1456	6.27	25.16
L4	31.50		-1.05		6.82		38.10		25.40	1329	10.67	1329	6.27	22.52
L3	21.00		-1.05		6.82		38.10		25.40	1329	9.37	1329	6.27	20.80
L2	10.50		-1.05		6.82		38.10		25.40	1297	8.37	1297	6.27	19.00
--														
--														
--														
--														
--														
--														
L1	0.00													

Base Shear = 129.1k

Direction East/West Roof Slope 5 :12

Level	Height	Projected Areas and Pressures												Story Force
		WR - Int		LR + Int		PWW		PLW		WW - Int		LW + Int		
		Trib Area	Wind Pressure	Trib Area	Wind Pressure	Trib Area	Wind Pressure	Trib Area	Wind Pressure	Trib Area	Wind Pressure	Trib Area	Wind Pressure	
	[ft]	[sf]	[psf]	[sf]	[psf]	[sf]	[psf]	[sf]	[psf]	[sf]	[psf]	[sf]	[psf]	[kips]
HR	57.67	280	-1.05	608	6.82	160	38.10	21	25.40	637	12.87	788	6.27	23.63
MR	52.50		-1.05		6.82		38.10		25.40	818	12.37	237	6.27	11.61
L5	42.00		-1.05		6.82		38.10		25.40	1198	11.57	1277	6.27	21.88
L4	31.50		-1.05		6.82		38.10		25.40	1144	10.67	1144	6.27	19.39
L3	21.00		-1.05		6.82		38.10		25.40	1158	9.37	1158	6.27	18.12
L2	10.50		-1.05		6.82		38.10		25.40	1151	8.37	1151	6.27	16.86
--														
--														
--														
--														
--														
--														
L1	0.00													

Base Shear = 111.5k

Engineer Comments:

Refer to previous pages for wind projected area determination.
Where interior pressures are shown, the 'Int' trib area is the 'LW' trib area subtracted by the 'WW' trib area
Roof Pressures shown are the horizontal component of the Normal Roof Pressures

KL&A Engineers & Builders

Title	Basecamp II	Date	2 22 26	Job No.	25336
Subject	Lateral Forces	By	CGC	Sheet	of

Wind Forces Summary

ASCE 7-16, Chapter 27

All forces are shown as 1.0W

North/South

Diaph Number	Story Elevation h, ft	Story Height ft	Story Force F_i, k	Story Shear V_i, k	Story Moment K-ft
HR	57.67	--	**27.0**	27.0	0
MR	52.5	5.167	**14.6**	41.6	139.4
L5	42	10.5	**25.2**	66.8	576.4
L4	31.5	10.5	**22.5**	89.3	1277.5
L3	21	10.5	**20.8**	110.1	2215.2
L2	10.5	10.5	**19.0**	129.1	3371.2
--					
--					
--					
--					
--					
--					
L1	0	10.50	GROUND LEVEL		4726.8

N/S Base Shear (1.0W) 129.1 K

East/West

Diaph Number	Story Elevation h, ft	Story Height ft	Story Force F_i, k	Story Shear V_i, k	Story Moment K-ft
HR	57.67	--	**23.6**	23.6	0
MR	52.5	5.167	**11.6**	35.2	122.1
L5	42	10.5	**21.9**	57.1	492.0
L4	31.5	10.5	**19.4**	76.5	1091.7
L3	21	10.5	**18.1**	94.6	1895.0
L2	10.5	10.5	**16.9**	111.5	2888.5
--					
--					
--					
--					
--					
--					
L1	0	10.5	GROUND LEVEL		4059.0

E/W Base Shear (1.0W) 111.5 K

LOAD KEY LEGEND

LOAD AREA	PATTERN	SELF WEIGHT (psf) (NOTES 1&2)	SUPERIMPOSED LOADS: DEAD LOAD (psf) (NOTE 3)	LIVE LOAD (psf) (NOTES 5&7)	SNOW LOAD (psf) (NOTES 6&7)	VERT WIND LOAD (psf) (NOTES 8&10)	HYDROSTATIC UPLIFT LOAD (NOTES 9&10)	LIVE LOAD REDUCTION	DESCRIPTION OF LOAD	NOTES
1		7	35	40	--	--	--	YES	TYPICAL RESIDENTIAL FLOOR	--
2		6	40	60	--	--	--	YES	TYPICAL BALCONY	SEE NOTES 1,2,4,5
3		6	20	20	73 + Drift	--	--	YES	TYPICAL ROOF	
4		5	35	100	--	--	--	NO	STAIRS/COMMONS	
5		5	30	40	--	--	--	YES	LOFT SPACE	
6										

Wall Summary

Load #	Description of Load	Self Weight (psf)	Superimposed Dead Load (psf)
1	Interior Wall	4	6
2	Exterior Wall (Metal Siding)	3	7
3	Elevator Core	51	0
4	Exterior Wall (Stucco)	5	12
5	Exterior Wall	0	0

High Roof - Walls Above

Description	Quantity	Unit
Wall-3_CMU-8"	34.8807000	ft

1 S0107 HIGH ROOF FRAMING PLAN

1/8" = 1'-0"

ROOF PLAN NOTES:

1. TYPICAL ROOF IS FINISHES AND INSULATION OVER 3/4" OSB/PLYWOOD ROOF SHEATHING OVER PREMANUFACTURED WOOD ROOF TRUSSES. ATTACH ROOF SHEATHING WITH 8d@6"OC AT EDGES AND 8d@12"OC IN FIELD, UNO.
2. ALL LVL MATERIAL IS 1 3/4" THICK, UNO.
3. RE: "TYPICAL WOOD HEADER TABLE" FOR HEADER SIZING AND NUMBER OF TRIMMER STUDS WHERE INDICATED "HDR" ON PLAN.
4. WHEN NOT SPECIFIED AS "HDR", MINIMUM NUMBER OF KING STUDS EACH SIDE OF OPENING IS EQUAL TO HALF THE NUMBER OF STUDS INTERRUPTED BY HEADER PLUS ONE, (2) MIN. RE: "TYPICAL WOOD HEADER TABLE" FOR ATTACHMENT OF HEADER TO KING STUDS.
5. COORDINATE FRAMING LAYOUT WITH LIGHTING LOCATIONS, RE: ARCH.
6. RE: SHEET S0001 FOR GENERAL NOTES AND LEGENDS
7. RE: SHEET S0011 FOR LOAD KEYS
8. RE: SHEET S0021 FOR TYPICAL DETAILS
9. RE: SHEET S0501 FOR SHEAR WALL, HOLDDOWN, AND HANGER SCHEDULES

N

APPROVAL STAMPS:

No.	Date	Description

SUBMISSIONS & REVISIONS

OWNER

MAY REIGLER PROPERTIES
2201 Wisconsin Ave NW Suite 200
Washington, DC 20007
www.mayriegler.com

ARCHITECT

KASA

KEVIN & ASAKO SPERRY ARCHITECTURE
3318 N. Columbus Street
Arlington, VA 22207
T.312.636.3248 / 312.636.4252
www.kasa-arch.com

GENERAL CONTRACTOR

DENEUVE CONSTRUCTION
2344 Spruce Street
Boulder, CO 80302
T: 303.444.6633

CIVIL ENGINEER

LANDMARK ENGINEERING
141 9th Street, PO Box 774943
Steamboat Springs, CO 80477
T.970.871.9494

LANDSCAPE ARCHITECT

STRUCTURAL ENGINEER

KL&A ENGINEERS & BUILDERS
1717 Washington Ave.
Golden, CO 80401
T. 303.384.9910
© 2022 KL&A, INC

M.E.P. & F.P. ENGINEERS

BOULDER ENGINEERING
1717 15th Street
Boulder, CO 80302
T. 303.444.6038

INTERIOR DESIGNER:

JOHNSON NATHAN STROHE
1600 Wynkoop St., Suite 100
Denver, CO 80202
T.303.892.7062

PROJECT LOCATION

STEAMBOAT BASECAMP II

STEAMBOAT BASECAMP, LOT 2
STEAMBOAT SPRINGS, CO 80487

DRAWING TITLE

HIGH ROOF FRAMING PLAN

SEAL

DATE: 11/25/25
DRAWN BY: Author
CHECKED BY: Checker
PROJECT NO:

DRAWING NO:

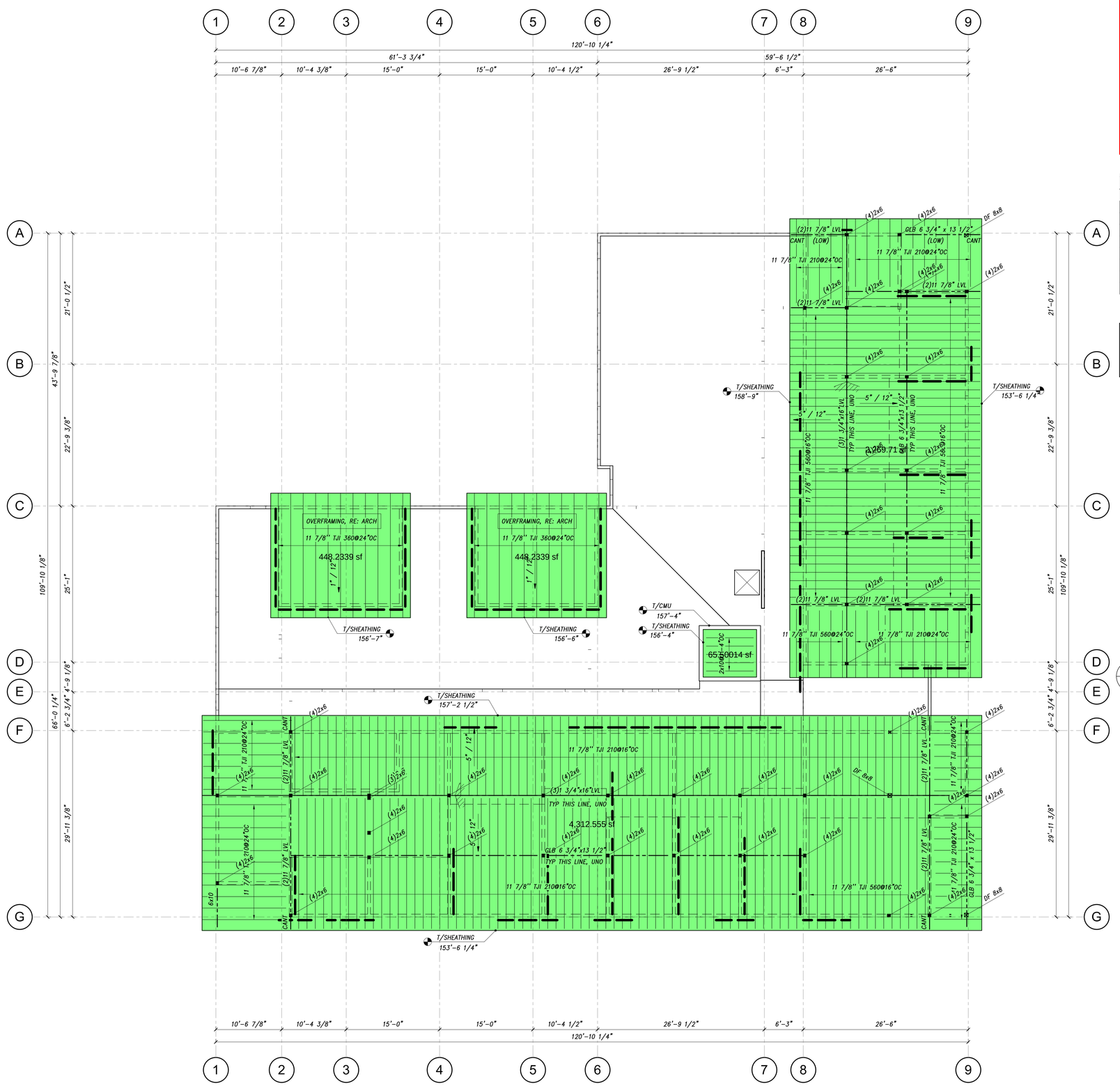
S0107

COPYRIGHT 2019

THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS ON THE PROJECT TO CLEARLY DEFINE ALL OF THE REQUIREMENTS FOR THE CONSTRUCTION. WHERE CONFLICTS OCCUR CONTACT ARCHITECT FOR CLARIFICATION.

THE STRUCTURAL ENGINEERS SEAL ON THIS DRAWING INDICATES THAT THE INFORMATION SHOWN AND THE CALCULATIONS PERTAINING TO THAT INFORMATION HAVE BEEN PREPARED BY QUALIFIED PEOPLE UNDER THE DIRECTION OF THE ENGINEER-OF-RECORD. THE SEAL DOES NOT IMPLY RESPONSIBILITY FOR INFORMATION PREPARED BY OTHERS NOR FOR ANY INFORMATION NOT SHOWN ON THIS DRAWING AND SUCH RESPONSIBILITY IS SPECIFICALLY DISCLAIMED. ON PHASED PROJECTS, DRAWINGS THAT ARE ISSUED BUT NOT SEALED SHALL BE CONSIDERED TO BE PRELIMINARY IN NATURE AND ARE ISSUED FOR INFORMATION ONLY.

Mon 02/09/2026 09:35:21 AM



LOAD KEY LEGEND

LOAD AREA	PATTERN	SELF WEIGHT (psf) (NOTES 1&2)	SUPERIMPOSED LOADS: DEAD LOAD (psf) (NOTE 3)	LIVE LOAD (psf) (NOTES 5&7)	SNOW LOAD (psf) (NOTES 6&7)	VERT WIND LOAD (psf) (NOTES 8&10)	HYDROSTATIC UPLIFT LOAD (NOTES 9&10)	LIVE LOAD REDUCTION	DESCRIPTION OF LOAD	NOTES
1		7	35	40	--	--	--	YES	TYPICAL RESIDENTIAL FLOOR	--
2		6	40	60	--	--	--	YES	TYPICAL BALCONY	SEE NOTES 1,2,4,5
3		6	20	20	73 + Drift	--	--	YES	TYPICAL ROOF	
4		5	35	100	--	--	--	NO	STAIRS/COMMONS	
5		5	30	40	--	--	--	YES	LOFT SPACE	
6										

Wall Summary

Load #	Description of Load	Self Weight (psf)	Superimposed Dead Load (psf)
1	Interior Wall	4	6
2	Exterior Wall (Metal Siding)	3	7
3	Elevator Core	51	0
4	Exterior Wall (Stucco)	5	12
5	Exterior Wall	0	0

High Roof - Areas

Description	Quantity	Unit
Load #3a - 5:12 Slope	6,582.26300	sf
Load #3b - 1:12 Slope	961.96810	sf

1 S0107 HIGH ROOF FRAMING PLAN

1/8" = 1'-0"

N

ROOF PLAN NOTES:

1. *TYPICAL ROOF IS FINISHES AND INSULATION OVER 3/4" OSB/PLYWOOD ROOF SHEATHING OVER PREMANUFACTURED WOOD ROOF TRUSSES. ATTACH ROOF SHEATHING WITH 8d@6"OC AT EDGES AND 8d@12"OC IN FIELD, UNO.*
2. *ALL LVL MATERIAL IS 1 3/4" THICK, UNO.*
3. *RE: "TYPICAL WOOD HEADER TABLE" FOR HEADER SIZING AND NUMBER OF TRIMMER STUDS WHERE INDICATED "HDR" ON PLAN.*
4. *WHEN NOT SPECIFIED AS "HDR", MINIMUM NUMBER OF KING STUDS EACH SIDE OF OPENING IS EQUAL TO HALF THE NUMBER OF STUDS INTERRUPTED BY HEADER PLUS ONE, (2) MIN. RE: "TYPICAL WOOD HEADER TABLE" FOR ATTACHMENT OF HEADER TO KING STUDS.*
5. *COORDINATE FRAMING LAYOUT WITH LIGHTING LOCATIONS, RE: ARCH.*
6. *RE: SHEET S0001 FOR GENERAL NOTES AND LEGENDS*
7. *RE: SHEET S0011 FOR LOAD KEYS*
8. *RE: SHEET S0021 FOR TYPICAL DETAILS*
9. *RE: SHEET S0501 FOR SHEAR WALL, HOLDOWN, AND HANGER SCHEDULES*

THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS ON THE PROJECT TO CLEARLY DEFINE ALL OF THE REQUIREMENTS FOR THE CONSTRUCTION. WHERE CONFLICTS OCCUR CONTACT ARCHITECT FOR CLARIFICATION.

THE STRUCTURAL ENGINEERS SEAL ON THIS DRAWING INDICATES THAT THE INFORMATION SHOWN AND THE CALCULATIONS PERTAINING TO THAT INFORMATION HAVE BEEN PREPARED BY QUALIFIED PEOPLE UNDER THE DIRECTION OF THE ENGINEER-OF-RECORD. THE SEAL DOES NOT IMPLY RESPONSIBILITY FOR INFORMATION PREPARED BY OTHERS NOR FOR ANY INFORMATION NOT SHOWN ON THIS DRAWING AND SUCH RESPONSIBILITY IS SPECIFICALLY DISCLAIMED. ON PHASED PROJECTS, DRAWINGS THAT ARE ISSUED BUT NOT SEALED SHALL BE CONSIDERED TO BE PRELIMINARY IN NATURE AND ARE ISSUED FOR INFORMATION ONLY.

Mon 02/09/2026 09:35:21 AM

APPROVAL STAMPS:

No.	Date	Description

SUBMISSIONS & REVISIONS

OWNER

MAY REIGLER PROPERTIES
2201 Wisconsin Ave NW Suite 200
Washington, DC 20007
www.mayriegler.com

ARCHITECT

KEVIN & ASAKO SPERRY ARCHITECTURE
3318 N. Columbus Street
Arlington, VA 22207
T.312.636.3248 / 312.636.4252
www.kasa-arch.com

GENERAL CONTRACTOR

DENEUVE CONSTRUCTION
2344 Spruce Street
Boulder, CO 80302
T: 303.444.6633

CIVIL ENGINEER

LANDMARK ENGINEERING
141 9th Street, PO Box 774943
Steamboat Springs, CO 80477
T.970.871.9494

LANDSCAPE ARCHITECT

STRUCTURAL ENGINEER

KL&A ENGINEERS & BUILDERS
1717 Washington Ave.
Golden, CO 80401
T. 303.384.9910

© 2022 KL&A, INC

M.E.P. & F.P. ENGINEERS

BOULDER ENGINEERING
1717 15th Street
Boulder, CO 80302
T. 303.444.6038

INTERIOR DESIGNER:

JOHNSON NATHAN STROHE
1600 Wynkoop St., Suite 100
Denver, CO 80202
T.303.892.7062

PROJECT LOCATION

STEAMBOAT BASECAMP II

STEAMBOAT BASECAMP, LOT 2
STEAMBOAT SPRINGS, CO 80487

DRAWING TITLE

HIGH ROOF FRAMING PLAN

SEAL

DATE: 11/25/25
DRAWN BY: Author
CHECKED BY: Checker
PROJECT NO:

DRAWING NO:

S0107

COPYRIGHT 2019

LOAD KEY LEGEND

LOAD AREA	PATTERN	SELF WEIGHT (psf) (NOTES 1&2)	SUPERIMPOSED LOADS: DEAD LOAD (psf) (NOTE 3)	LIVE LOAD (psf) (NOTES 5&7)	SNOW LOAD (psf) (NOTES 6&7)	VERT WIND LOAD (psf) (NOTES 8&10)	HYDROSTATIC UPLIFT LOAD (NOTES 9&10)	LIVE LOAD REDUCTION	DESCRIPTION OF LOAD	NOTES
1		7	35	40	--	--	--	YES	TYPICAL RESIDENTIAL FLOOR	--
2		6	40	60	--	--	--	YES	TYPICAL BALCONY	SEE NOTES 1,2,4,5
3		6	20	20	73 + Drift	--	--	YES	TYPICAL ROOF	
4		5	35	100	--	--	--	NO	STAIRS/COMMONS	
5		5	30	40	--	--	--	YES	LOFT SPACE	
6										

Wall Summary

Load #	Description of Load	Self Weight (psf)	Superimposed Dead Load (psf)
1	Interior Wall	4	6
2	Exterior Wall (Metal Siding)	3	7
3	Elevator Core	51	0
4	Exterior Wall (Stucco)	5	12
5	Exterior Wall	0	0

High Roof - Walls Below

Description	Quantity	Unit
Wall-1a_2x6-Int-Brng	122.8984000	ft
Wall-1b_2x6-Int-Brng	148.0402000	ft
Wall-2a_2x6-Ext-Brg-Mtl-Sdng	392.2002000	ft
Wall-2b_2x6-Ext-Brg-Mtl-Sdng	244.4933000	ft
Wall-3_CMU-8"	34.8807000	ft

1 S0107 HIGH ROOF FRAMING PLAN

1/8" = 1'-0"

N

ROOF PLAN NOTES:

1. *TYPICAL ROOF IS FINISHES AND INSULATION OVER 3/4" OSB/PLYWOOD ROOF SHEATHING OVER PREMANUFACTURED WOOD ROOF TRUSSES. ATTACH ROOF SHEATHING WITH 8@6"OC AT EDGES AND 8@12"OC IN FIELD, UNO.*
2. *ALL LVL MATERIAL IS 1 3/4" THICK, UNO.*
3. *RE: "TYPICAL WOOD HEADER TABLE" FOR HEADER SIZING AND NUMBER OF TRIMMER STUDS WHERE INDICATED "HDR" ON PLAN.*
4. *WHEN NOT SPECIFIED AS "HDR", MINIMUM NUMBER OF KING STUDS EACH SIDE OF OPENING IS EQUAL TO HALF THE NUMBER OF STUDS INTERRUPTED BY HEADER PLUS ONE, (2) MIN. RE: "TYPICAL WOOD HEADER TABLE" FOR ATTACHMENT OF HEADER TO KING STUDS.*
5. *COORDINATE FRAMING LAYOUT WITH LIGHTING LOCATIONS, RE: ARCH.*
6. *RE: SHEET S0001 FOR GENERAL NOTES AND LEGENDS*
7. *RE: SHEET S0011 FOR LOAD KEYS*
8. *RE: SHEET S0021 FOR TYPICAL DETAILS*
9. *RE: SHEET S0501 FOR SHEAR WALL, HOLDOWN, AND HANGER SCHEDULES*

APPROVAL STAMPS:

No.	Date	Description

SUBMISSIONS & REVISIONS

OWNER

MAY REIGLER PROPERTIES
2201 Wisconsin Ave NW Suite 200
Washington, DC 20007
www.mayriegler.com

ARCHITECT

KEVIN & ASAKO SPERRY ARCHITECTURE
3318 N. Columbus Street
Arlington, VA 22207
T.312.636.3248 / 312.636.4252
www.kasa-arch.com

GENERAL CONTRACTOR

DENEUVE CONSTRUCTION
2344 Spruce Street
Boulder, CO 80302
T: 303.444.6633

CIVIL ENGINEER

LANDMARK ENGINEERING
141 9th Street, PO Box 774943
Steamboat Springs, CO 80477
T.970.871.9494

LANDSCAPE ARCHITECT

STRUCTURAL ENGINEER

KL&A ENGINEERS & BUILDERS
1717 Washington Ave.
Golden, CO 80401
T. 303.384.9910

© 2022 KL&A, INC

M.E.P. & F.P. ENGINEERS

BOULDER ENGINEERING
1717 15th Street
Boulder, CO 80302
T. 303.444.6038

INTERIOR DESIGNER:

JOHNSON NATHAN STROHE
1600 Wynkoop St., Suite 100
Denver, CO 80202
T.303.892.7062

PROJECT LOCATION

STEAMBOAT BASECAMP II

STEAMBOAT BASECAMP, LOT 2
STEAMBOAT SPRINGS, CO 80487

DRAWING TITLE

HIGH ROOF FRAMING PLAN

SEAL	DATE: 11/25/25
	DRAWN BY: Author
	CHECKED BY: Checker
	PROJECT NO:

DRAWING NO:

S0107

COPYRIGHT 2019

THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS ON THE PROJECT TO CLEARLY DEFINE ALL OF THE REQUIREMENTS FOR THE CONSTRUCTION. WHERE CONFLICTS OCCUR CONTACT ARCHITECT FOR CLARIFICATION.

THE STRUCTURAL ENGINEERS SEAL ON THIS DRAWING INDICATES THAT THE INFORMATION SHOWN AND THE CALCULATIONS PERTAINING TO THAT INFORMATION HAVE BEEN PREPARED BY QUALIFIED PEOPLE UNDER THE DIRECTION OF THE ENGINEER-OF-RECORD. THE SEAL DOES NOT IMPLY RESPONSIBILITY FOR INFORMATION PREPARED BY OTHERS NOR FOR ANY INFORMATION NOT SHOWN ON THIS DRAWING AND SUCH RESPONSIBILITY IS SPECIFICALLY DISCLAIMED. ON PHASED PROJECTS, DRAWINGS THAT ARE ISSUED BUT NOT SEALED SHALL BE CONSIDERED TO BE PRELIMINARY IN NATURE AND ARE ISSUED FOR INFORMATION ONLY.

Mon 02/09/2026 09:35:21 AM

LOAD KEY LEGEND

LOAD AREA	PATTERN	SELF WEIGHT (psf) (NOTES 1&2)	SUPERIMPOSED LOADS: DEAD LOAD (psf) (NOTE 3)	LIVE LOAD (psf) (NOTES 5&7)	SNOW LOAD (psf) (NOTES 6&7)	VERT WIND LOAD (psf) (NOTES 8&10)	HYDROSTATIC UPLIFT LOAD (NOTES 9&10)	LIVE LOAD REDUCTION	DESCRIPTION OF LOAD	NOTES
1		7	35	40	--	--	--	YES	TYPICAL RESIDENTIAL FLOOR	--
2		6	40	60	--	--	--	YES	TYPICAL BALCONY	SEE NOTES 1,2,4,5
3		6	20	20	73 + Drift	--	--	YES	TYPICAL ROOF	
4		5	35	100	--	--	--	NO	STAIRS/COMMONS	
5		5	30	40	--	--	--	YES	LOFT SPACE	
6										

Wall Summary

Load #	Description of Load	Self Weight (psf)	Superimposed Dead Load (psf)
1	Interior Wall	4	6
2	Exterior Wall (Metal Siding)	3	7
3	Elevator Core	51	0
4	Exterior Wall (Stucco)	5	12
5	Exterior Wall	0	0

Roof - Walls Above

Description	Quantity	Unit
Wall-1_2x6-Int-Brng	122.8984000	ft
Wall-2a_2x6-Ext-Brg-Mtl-Sdng	392.2002000	ft
Wall-2b_2x6-Ext-Brg-Mtl-Sdng	149.6666000	ft
Wall-3_CMU-8"	34.8807000	ft

1 S0106 ROOF FRAMING PLAN

1/8" = 1'-0"

N

ROOF PLAN NOTES:

1. TYPICAL ROOF IS FINISHES AND INSULATION OVER 3/4" OSB/PLYWOOD ROOF SHEATHING OVER PREMANUFACTURED WOOD ROOF TRUSSES. ATTACH ROOF SHEATHING WITH 8d@6"OC AT EDGES AND 8d@12"OC IN FIELD, UNO.
2. ALL LVL MATERIAL IS 1 3/4" THICK, UNO.
3. RE: "TYPICAL WOOD HEADER TABLE" FOR HEADER SIZING AND NUMBER OF TRIMMER STUDS WHERE INDICATED "HDR" ON PLAN.
4. WHEN NOT SPECIFIED AS "HDR", MINIMUM NUMBER OF KING STUDS EACH SIDE OF OPENING IS EQUAL TO HALF THE NUMBER OF STUDS INTERRUPTED BY HEADER PLUS ONE, (2) MIN. RE: "TYPICAL WOOD HEADER TABLE" FOR ATTACHMENT OF HEADER TO KING STUDS.
5. COORDINATE FRAMING LAYOUT WITH LIGHTING LOCATIONS, RE: ARCH.
6. RE: SHEET S0001 FOR GENERAL NOTES AND LEGENDS
7. RE: SHEET S0011 FOR LOAD KEYS
8. RE: SHEET S0021 FOR TYPICAL DETAILS
9. RE: SHEET S0501 FOR SHEAR WALL, HOLDOWN, AND HANGER SCHEDULES

WOOD FLOOR FRAMING PLAN NOTES:

1. TYPICAL FLOOR IS ARCHITECTURAL FINISHES OVER 1 1/2" MAX GYPCRETE TOPPING SLAB OVER 3/4" T&G OSB/PLYWOOD FLOOR SHEATHING OVER PREMANUFACTURED WOOD FLOOR TRUSSES. TYPICAL FLOOR SHEATHING ATTACHMENT IS GLUE AND NAIL WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD, UNO.
2. TYPICAL EXTERIOR WALL IS 1/2" OSB/PLYWOOD WALL SHEATHING ON 2x6 DFL No2@SPACING SHOWN IN BEARING WALL SCHEDULE, UNO. ATTACH WALL SHEATHING WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD UNLESS DESIGNATED AS A SHEAR WALL. RE: SHEAR WALL SCHEDULE FOR SHEAR WALL NAILING.
3. TYPICAL INTERIOR STRUCTURAL WALL IS 2x6 DFL No2 @SPACING SHOWN IN BEARING WALL SCHEDULE, UNO.
4. TYPICAL COLUMN IS (3)2x6 DFL No2, UNO.
5. ALL LVL MATERIAL IS 1 3/4" THICK, UNO.
6. RE: "TYPICAL WOOD HEADER TABLE" FOR HEADER SIZING AND NUMBER OF TRIMMER STUDS WHERE INDICATED "HDR" ON PLAN.
7. WHEN NOT SPECIFIED AS "HDR", MINIMUM NUMBER OF KING STUDS EACH SIDE OF OPENING IS EQUAL TO HALF THE NUMBER OF STUDS INTERRUPTED BY HEADER PLUS ONE, (2) MIN. RE: "TYPICAL WOOD HEADER TABLE" FOR ATTACHMENT OF HEADER TO KING STUDS.
8. RE: ARCH FOR WINDOW AND DOOR LOCATIONS.
9. COORDINATE FRAMING LAYOUT WITH LIGHTING LOCATIONS, RE: ARCH.
10. RE: SHEET S0001 FOR GENERAL NOTES AND LEGENDS.
11. RE: SHEET S0011 FOR LOAD KEYS.
12. RE: SHEET S0021 FOR TYPICAL DETAILS.
13. RE: SHEET S0501 FOR SHEAR WALL, HOLDOWN, HANGER, AND BASE PLATE SCHEDULES.

THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS ON THE PROJECT TO CLEARLY DEFINE ALL OF THE REQUIREMENTS FOR THE CONSTRUCTION. WHERE CONFLICTS OCCUR CONTACT ARCHITECT FOR CLARIFICATION.

THE STRUCTURAL ENGINEERS SEAL ON THIS DRAWING INDICATES THAT THE INFORMATION SHOWN AND THE CALCULATIONS PERTAINING TO THAT INFORMATION HAVE BEEN PREPARED BY QUALIFIED PEOPLE UNDER THE DIRECTION OF THE ENGINEER-OF-RECORD. THE SEAL DOES NOT IMPLY RESPONSIBILITY FOR INFORMATION PREPARED BY OTHERS NOR FOR ANY INFORMATION NOT SHOWN ON THIS DRAWING AND SUCH RESPONSIBILITY IS SPECIFICALLY DISCLAIMED. ON PHASED PROJECTS, DRAWINGS THAT ARE ISSUED BUT NOT SCALED SHALL BE CONSIDERED TO BE PRELIMINARY IN NATURE AND ARE ISSUED FOR INFORMATION ONLY.

Mon 02/09/2026 09:35:19 AM

APPROVAL STAMPS:

No.	Date	Description

SUBMISSIONS & REVISIONS

OWNER

MAY REIGLER PROPERTIES
2201 Wisconsin Ave NW Suite 200
Washington, DC 20007
www.mayriegler.com

ARCHITECT

KEVIN & ASAKO SPERRY ARCHITECTURE
3318 N. Columbus Street
Arlington, VA 22207
T.312.636.3248 / 312.636.4252
www.kasa-arch.com

GENERAL CONTRACTOR

DENEUVE CONSTRUCTION
2344 Spruce Street
Boulder, CO 80302
T: 303.444.6633

CIVIL ENGINEER

LANDMARK ENGINEERING
141 9th Street, PO Box 774943
Steamboat Springs, CO 80477
T.970.871.9494

LANDSCAPE ARCHITECT

STRUCTURAL ENGINEER

KL&A ENGINEERS & BUILDERS
1717 Washington Ave.
Golden, CO 80401
T. 303.384.9910
© 2022 KL&A, INC
M.E.P. & F.P. ENGINEERS

BOULDER ENGINEERING
1717 15th Street
Boulder, CO 80302
T. 303.444.6038

INTERIOR DESIGNER:

JOHNSON NATHAN STROHE
1600 Wynkoop St., Suite 100
Denver, CO 80202
T.303.892.7062

PROJECT LOCATION

STEAMBOAT BASECAMP II

STEAMBOAT BASECAMP, LOT 2
STEAMBOAT SPRINGS, CO 80487

DRAWING TITLE

ROOF FRAMING PLAN

SEAL

DATE: 11/25/25
DRAWN BY: Author
CHECKED BY: Checker
PROJECT NO:

DRAWING NO:

S0106

COPYRIGHT 2019

LOAD KEY LEGEND

LOAD AREA	PATTERN	SELF WEIGHT (psf) (NOTES 1&2)	SUPERIMPOSED LOADS: DEAD LOAD (psf) (NOTE 3)	LIVE LOAD (psf) (NOTES 5&7)	SNOW LOAD (psf) (NOTES 6&7)	VERT WIND LOAD (psf) (NOTES 8&10)	HYDROSTATIC UPLIFT LOAD (NOTES 9&10)	LIVE LOAD REDUCTION	DESCRIPTION OF LOAD	NOTES
1		7	35	40	--	--	--	YES	TYPICAL RESIDENTIAL FLOOR	--
2		6	40	60	--	--	--	YES	TYPICAL BALCONY	SEE NOTES 1,2,4,5
3		6	20	20	73 + Drift	--	--	YES	TYPICAL ROOF	
4		5	35	100	--	--	--	NO	STAIRS/COMMONS	
5		5	30	40	--	--	--	YES	LOFT SPACE	
6										

Wall Summary

Load #	Description of Load	Self Weight (psf)	Superimposed Dead Load (psf)
1	Interior Wall	4	6
2	Exterior Wall (Metal Siding)	3	7
3	Elevator Core	51	0
4	Exterior Wall (Stucco)	5	12
5	Exterior Wall	0	0

Roof - Areas

Description	Quantity	Unit
Load #3	4,264.21200	sf
Load #5	3,194.85800	sf

1 S0106 ROOF FRAMING PLAN

1/8" = 1'-0"

N

ROOF PLAN NOTES:

1. TYPICAL ROOF IS FINISHES AND INSULATION OVER 3/4" OSB/PLYWOOD ROOF SHEATHING OVER PREMANUFACTURED WOOD ROOF TRUSSES. ATTACH ROOF SHEATHING WITH 8d@6"OC AT EDGES AND 8d@12"OC IN FIELD, UNO.
2. ALL LVL MATERIAL IS 1 3/4" THICK, UNO.
3. RE: "TYPICAL WOOD HEADER TABLE" FOR HEADER SIZING AND NUMBER OF TRIMMER STUDS WHERE INDICATED "HDR" ON PLAN.
4. WHEN NOT SPECIFIED AS "HDR", MINIMUM NUMBER OF KING STUDS EACH SIDE OF OPENING IS EQUAL TO HALF THE NUMBER OF STUDS INTERRUPTED BY HEADER PLUS ONE, (2) MIN. RE: "TYPICAL WOOD HEADER TABLE" FOR ATTACHMENT OF HEADER TO KING STUDS.
5. COORDINATE FRAMING LAYOUT WITH LIGHTING LOCATIONS, RE: ARCH.
6. RE: SHEET S0001 FOR GENERAL NOTES AND LEGENDS
7. RE: SHEET S0011 FOR LOAD KEYS
8. RE: SHEET S0021 FOR TYPICAL DETAILS
9. RE: SHEET S0501 FOR SHEAR WALL, HOLDOWN, AND HANGER SCHEDULES

WOOD FLOOR FRAMING PLAN NOTES:

1. TYPICAL FLOOR IS ARCHITECTURAL FINISHES OVER 1 1/2" MAX GYPCRETE TOPPING SLAB OVER 3/4" T&G OSB/PLYWOOD FLOOR SHEATHING OVER PREMANUFACTURED WOOD FLOOR TRUSSES. TYPICAL FLOOR SHEATHING ATTACHMENT IS GLUE AND NAIL WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD, UNO.
2. TYPICAL EXTERIOR WALL IS 1/2" OSB/PLYWOOD WALL SHEATHING ON 2x6 DFL No2@SPACING SHOWN IN BEARING WALL SCHEDULE, UNO. ATTACH WALL SHEATHING WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD UNLESS DESIGNATED AS A SHEAR WALL. RE: SHEAR WALL SCHEDULE FOR SHEAR WALL NAILING.
3. TYPICAL INTERIOR STRUCTURAL WALL IS 2x6 DFL No2 @SPACING SHOWN IN BEARING WALL SCHEDULE, UNO.
4. TYPICAL COLUMN IS (3)2x6 DFL No2, UNO.
5. ALL LVL MATERIAL IS 1 3/4" THICK, UNO.
6. RE: "TYPICAL WOOD HEADER TABLE" FOR HEADER SIZING AND NUMBER OF TRIMMER STUDS WHERE INDICATED "HDR" ON PLAN.
7. WHEN NOT SPECIFIED AS "HDR", MINIMUM NUMBER OF KING STUDS EACH SIDE OF OPENING IS EQUAL TO HALF THE NUMBER OF STUDS INTERRUPTED BY HEADER PLUS ONE, (2) MIN. RE: "TYPICAL WOOD HEADER TABLE" FOR ATTACHMENT OF HEADER TO KING STUDS.
8. RE: ARCH FOR WINDOW AND DOOR LOCATIONS.
9. COORDINATE FRAMING LAYOUT WITH LIGHTING LOCATIONS, RE: ARCH.
10. RE: SHEET S0001 FOR GENERAL NOTES AND LEGENDS.
11. RE: SHEET S0011 FOR LOAD KEYS.
12. RE: SHEET S0021 FOR TYPICAL DETAILS.
13. RE: SHEET S0501 FOR SHEAR WALL, HOLDOWN, HANGER, AND BASE PLATE SCHEDULES.

APPROVAL STAMPS:

No.	Date	Description

SUBMISSIONS & REVISIONS

OWNER

MAY REIGLER PROPERTIES
2201 Wisconsin Ave NW Suite 200
Washington, DC 20007
www.mayriegler.com

ARCHITECT

KEVIN & ASAKO SPERRY ARCHITECTURE
3318 N. Columbus Street
Arlington, VA 22207
T.312.636.3248 / 312.636.4252
www.kasa-arch.com

GENERAL CONTRACTOR

DENEUVE CONSTRUCTION
2344 Spruce Street
Boulder, CO 80302
T: 303.444.6633

CIVIL ENGINEER

LANDMARK ENGINEERING
141 9th Street, PO Box 774943
Steamboat Springs, CO 80477
T.970.871.9494

LANDSCAPE ARCHITECT

STRUCTURAL ENGINEER

KL&A ENGINEERS & BUILDERS
1717 Washington Ave.
Golden, CO 80401
T. 303.384.9910
© 2022 KL&A, INC

M.E.P. & F.P. ENGINEERS

BOULDER ENGINEERING
1717 15th Street
Boulder, CO 80302
T. 303.444.6038

INTERIOR DESIGNER:

JOHNSON NATHAN STROHE
1600 Wynkoop St., Suite 100
Denver, CO 80202
T.303.892.7062

PROJECT LOCATION

STEAMBOAT BASECAMP II

STEAMBOAT BASECAMP, LOT 2
STEAMBOAT SPRINGS, CO 80487

DRAWING TITLE

ROOF FRAMING PLAN

SEAL

DATE: 11/25/25
DRAWN BY: Author
CHECKED BY: Checker
PROJECT NO:

DRAWING NO:

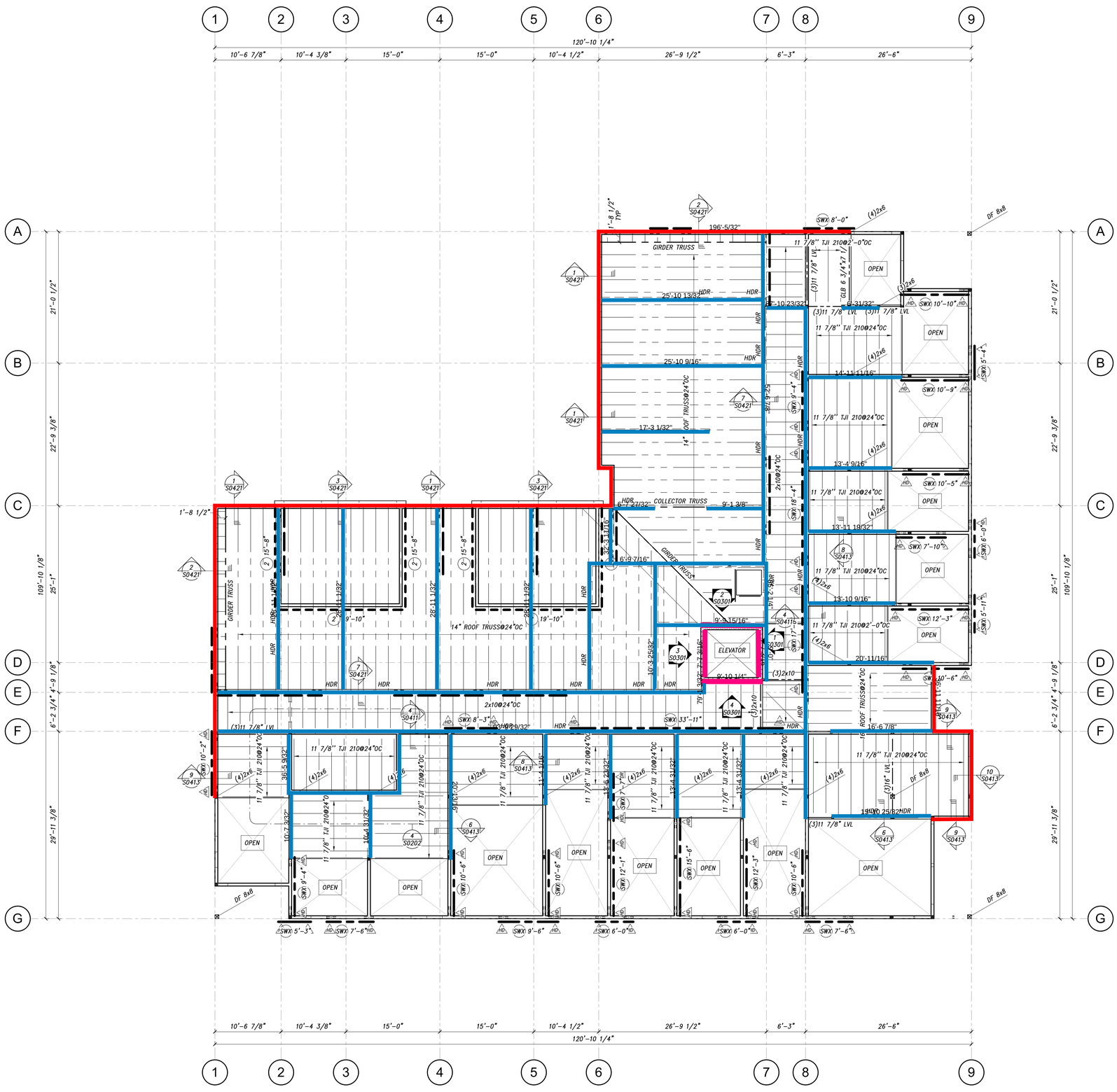
S0106

COPYRIGHT 2019

THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS ON THE PROJECT TO CLEARLY DEFINE ALL OF THE REQUIREMENTS FOR THE CONSTRUCTION. WHERE CONFLICTS OCCUR CONTACT ARCHITECT FOR CLARIFICATION.

THE STRUCTURAL ENGINEERS SEAL ON THIS DRAWING INDICATES THAT THE INFORMATION SHOWN AND THE CALCULATIONS PERTAINING TO THAT INFORMATION HAVE BEEN PREPARED BY QUALIFIED PEOPLE UNDER THE DIRECTION OF THE ENGINEER-OF-RECORD. THE SEAL DOES NOT IMPLY RESPONSIBILITY FOR INFORMATION PREPARED BY OTHERS NOR FOR ANY INFORMATION NOT SHOWN ON THIS DRAWING AND SUCH RESPONSIBILITY IS SPECIFICALLY DISCLAIMED. ON PHASED PROJECTS, DRAWINGS THAT ARE ISSUED BUT NOT SEALED SHALL BE CONSIDERED TO BE PRELIMINARY IN NATURE AND ARE ISSUED FOR INFORMATION ONLY.

Mon 02/09/2026 09:35:19 AM


1 2 3 4 5 6 7 8 9
120'-10 1/4"
10'-6 7/8" 10'-4 3/8" 15'-0" 15'-0" 10'-4 1/2" 26'-9 1/2" 6'-3" 26'-6"
A B C D E F G
109'-10 1/8"
21'-0 1/2"
22'-9 3/8"
25'-1"
6'-2 3/4"
4'-9 1/8"
29'-11 3/8"
1'-8 1/2" TYP
196'-5/32"
GIRDER TRUSS
25'-10 13/32"
25'-10 9/16"
17'-3 1/32"
14" ROOF TRUSS@24"OC
HDR
COLLECTOR TRUSS
9'-1 3/8"
6'-9 7/16"
ELEVATOR
9'-9 15/16"
9'-9 1/4"
2x10@24"OC
(3)11 7/8" LVL
11 7/8" TJI 210@24"OC
11 7/8" TJI 210@2'-0"OC
(4)2x6
(3)2x10
DF 8x8
OPEN
SWX 8'-0"
SWX 10'-10"
SWX 10'-9"
SWX 10'-5"
SWX 7'-10"
SWX 12'-3"
SWX 5'-11"
SWX 5'-4"
SWX 6'-0"
SWX 10'-6"
SWX 9'-4"
SWX 18'-4"
SWX 8'-3"
SWX 33'-11"
SWX 5'-3"
SWX 7'-6"
SWX 9'-6"
SWX 6'-0"
SWX 15'-6"
SWX 12'-1"
SWX 10'-2"
SWX 7'-10"
SWX 10'-6"
SWX 16'-9"
SWX 20'-11"
SWX 16'-6 7/8"
SWX 14'-11 11/16"
SWX 13'-11 19/32"
SWX 13'-10 9/16"
SWX 20'-11/16"
SWX 13'-4 9/16"
SWX 13'-4 31/32"
SWX 12'-6 21/32"
SWX 10'-6 25/32"
SWX 10'-2 3/32"
SWX 10'-4 31/32"
SWX 9'-4 25/32"
SWX 6'-9 7/16"
SWX 6'-3 31/32"
SWX 6'-1 27/32"
SWX 6'-0 31/32"
SWX 5'-4 25/32"
SWX 3'-2 25/32"
SWX 2'-4 15/16"
SWX 1'-7 1/2"
SWX 1'-2 3/32"
SWX 1'-0 23/32"
SWX 6'-0 31/32"
SWX 6'-0 27/32"
SWX 6'-0 25/32"
SWX 6'-0 23/32"
SWX 6'-0 21/32"
SWX 6'-0 19/32"
SWX 6'-0 17/32"
SWX 6'-0 15/32"
SWX 6'-0 13/32"
SWX 6'-0 11/32"
SWX 6'-0 9/32"
SWX 6'-0 7/32"
SWX 6'-0 5/32"
SWX 6'-0 3/32"
SWX 6'-0 1/32"
SWX 5'-11 31/32"
SWX 5'-11 29/32"
SWX 5'-11 27/32"
SWX 5'-11 25/32"
SWX 5'-11 23/32"
SWX 5'-11 21/32"
SWX 5'-11 19/32"
SWX 5'-11 17/32"
SWX 5'-11 15/32"
SWX 5'-11 13/32"
SWX 5'-11 11/32"
SWX 5'-11 9/32"
SWX 5'-11 7/32"
SWX 5'-11 5/32"
SWX 5'-11 3/32"
SWX 5'-11 1/32"
SWX 5'-10 31/32"
SWX 5'-10 29/32"
SWX 5'-10 27/32"
SWX 5'-10 25/32"
SWX 5'-10 23/32"
SWX 5'-10 21/32"
SWX 5'-10 19/32"
SWX 5'-10 17/32"
SWX 5'-10 15/32"
SWX 5'-10 13/32"
SWX 5'-10 11/32"
SWX 5'-10 9/32"
SWX 5'-10 7/32"
SWX 5'-10 5/32"
SWX 5'-10 3/32"
SWX 5'-10 1/32"
SWX 5'-9 29/32"
SWX 5'-9 27/32"
SWX 5'-9 25/32"
SWX 5'-9 23/32"
SWX 5'-9 21/32"
SWX 5'-9 19/32"
SWX 5'-9 17/32"
SWX 5'-9 15/32"
SWX 5'-9 13/32"
SWX 5'-9 11/32"
SWX 5'-9 9/32"
SWX 5'-9 7/32"
SWX 5'-9 5/32"
SWX 5'-9 3/32"
SWX 5'-9 1/32"
SWX 5'-8 31/32"
SWX 5'-8 29/32"
SWX 5'-8 27/32"
SWX 5'-8 25/32"
SWX 5'-8 23/32"
SWX 5'-8 21/32"
SWX 5'-8 19/32"
SWX 5'-8 17/32"
SWX 5'-8 15/32"
SWX 5'-8 13/32"
SWX 5'-8 11/32"
SWX 5'-8 9/32"
SWX 5'-8 7/32"
SWX 5'-8 5/32"
SWX 5'-8 3/32"
SWX 5'-8 1/32"
SWX 5'-7 31/32"
SWX 5'-7 29/32"
SWX 5'-7 27/32"
SWX 5'-7 25/32"
SWX 5'-7 23/32"
SWX 5'-7 21/32"
SWX 5'-7 19/32"
SWX 5'-7 17/32"
SWX 5'-7 15/32"
SWX 5'-7 13/32"
SWX 5'-7 11/32"
SWX 5'-7 9/32"
SWX 5'-7 7/32"
SWX 5'-7 5/32"
SWX 5'-7 3/32"
SWX 5'-7 1/32"
SWX 5'-6 31/32"
SWX 5'-6 29/32"
SWX 5'-6 27/32"
SWX 5'-6 25/32"
SWX 5'-6 23/32"
SWX 5'-6 21/32"
SWX 5'-6 19/32"
SWX 5'-6 17/32"
SWX 5'-6 15/32"
SWX 5'-6 13/32"
SWX 5'-6 11/32"
SWX 5'-6 9/32"
SWX 5'-6 7/32"
SWX 5'-6 5/32"
SWX 5'-6 3/32"
SWX 5'-6 1/32"
SWX 5'-5 31/32"
SWX 5'-5 29/32"
SWX 5'-5 27/32"
SWX 5'-5 25/32"
SWX 5'-5 23/32"
SWX 5'-5 21/32"
SWX 5'-5 19/32"
SWX 5'-5 17/32"
SWX 5'-5 15/32"
SWX 5'-5 13/32"
SWX 5'-5 11/32"
SWX 5'-5 9/32"
SWX 5'-5 7/32"
SWX 5'-5 5/32"
SWX 5'-5 3/32"
SWX 5'-5 1/32"
SWX 5'-4 31/32"
SWX 5'-4 29/32"
SWX 5'-4 27/32"
SWX 5'-4 25/32"
SWX 5'-4 23/32"
SWX 5'-4 21/32"
SWX 5'-4 19/32"
SWX 5'-4 17/32"
SWX 5'-4 15/32"
SWX 5'-4 13/32"
SWX 5'-4 11/32"
SWX 5'-4 9/32"
SWX 5'-4 7/32"
SWX 5'-4 5/32"
SWX 5'-4 3/32"
SWX 5'-4 1/32"
SWX 5'-3 31/32"
SWX 5'-3 29/32"
SWX 5'-3 27/32"
SWX 5'-3 25/32"
SWX 5'-3 23/32"
SWX 5'-3 21/32"
SWX 5'-3 19/32"
SWX 5'-3 17/32"
SWX 5'-3 15/32"
SWX 5'-3 13/32"
SWX 5'-3 11/32"
SWX 5'-3 9/32"
SWX 5'-3 7/32"
SWX 5'-3 5/32"
SWX 5'-3 3/32"
SWX 5'-3 1/32"
SWX 5'-2 31/32"
SWX 5'-2 29/32"
SWX 5'-2 27/32"
SWX 5'-2 25/32"
SWX 5'-2 23/32"
SWX 5'-2 21/32"
SWX 5'-2 19/32"
SWX 5'-2 17/32"
SWX 5'-2 15/32"
SWX 5'-2 13/32"
SWX 5'-2 11/32"
SWX 5'-2 9/32"
SWX 5'-2 7/32"
SWX 5'-2 5/32"
SWX 5'-2 3/32"
SWX 5'-2 1/32"
SWX 5'-1 31/32"
SWX 5'-1 29/32"
SWX 5'-1 27/32"
SWX 5'-1 25/32"
SWX 5'-1 23/32"
SWX 5'-1 21/32"
SWX 5'-1 19/32"
SWX 5'-1 17/32"
SWX 5'-1 15/32"
SWX 5'-1 13/32"
SWX 5'-1 11/32"
SWX 5'-1 9/32"
SWX 5'-1 7/32"
SWX 5'-1 5/32"
SWX 5'-1 3/32"
SWX 5'-1 1/32"
SWX 5'-0 31/32"
SWX 5'-0 29/32"
SWX 5'-0 27/32"
SWX 5'-0 25/32"
SWX 5'-0 23/32"
SWX 5'-0 21/32"
SWX 5'-0 19/32"
SWX 5'-0 17/32"
SWX 5'-0 15/32"
SWX 5'-0 13/32"
SWX 5'-0 11/32"
SWX 5'-0 9/32"
SWX 5'-0 7/32"
SWX 5'-0 5/32"
SWX 5'-0 3/32"
SWX 5'-0 1/32"
SWX 4'-11 31/32"
SWX 4'-11 29/32"
SWX 4'-11 27/32"
SWX 4'-11 25/32"
SWX 4'-11 23/32"
SWX 4'-11 21/32"
SWX 4'-11 19/32"
SWX 4'-11 17/32"
SWX 4'-11 15/32"
SWX 4'-11 13/32"
SWX 4'-11 11/32"
SWX 4'-11 9/32"
SWX 4'-11 7/32"
SWX 4'-11 5/32"
SWX 4'-11 3/32"
SWX 4'-11 1/32"
SWX 4'-10 31/32"
SWX 4'-10 29/32"
SWX 4'-10 27/32"
SWX 4'-10 25/32"
SWX 4'-10 23/32"
SWX 4'-10 21/32"
SWX 4'-10 19/32"
SWX 4'-10 17/32"
SWX 4'-10 15/32"
SWX 4'-10 13/32"
SWX 4'-10 11/32"
SWX 4'-10 9/32"
SWX 4'-10 7/32"
SWX 4'-10 5/32"
SWX 4'-10 3/32"
SWX 4'-10 1/32"
SWX 4'-9 31/32"
SWX 4'-9 29/32"
SWX 4'-9 27/32"
SWX 4'-9 25/32"
SWX 4'-9 23/32"
SWX 4'-9 21/32"
SWX 4'-9 19/32"
SWX 4'-9 17/32"
SWX 4'-9 15/32"
SWX 4'-9 13/32"
SWX 4'-9 11/32"
SWX 4'-9 9/32"
SWX 4'-9 7/32"
SWX 4'-9 5/32"
SWX 4'-9 3/32"
SWX 4'-9 1/32"
SWX 4'-8 31/32"
SWX 4'-8 29/32"
SWX 4'-8 27/32"
SWX 4'-8 25/32"
SWX 4'-8 23/32"
SWX 4'-8 21/32"
SWX 4'-8 19/32"
SWX 4'-8 17/32"
SWX 4'-8 15/32"
SWX 4'-8 13/32"
SWX 4'-8 11/32"
SWX 4'-8 9/32"
SWX 4'-8 7/32"
SWX 4'-8 5/32"
SWX 4'-8 3/32"
SWX 4'-8 1/32"
SWX 4'-7 31/32"
SWX 4'-7 29/32"
SWX 4'-7 27/32"
SWX 4'-7 25/32"
SWX 4'-7 23/32"
SWX 4'-7 21/32"
SWX 4'-7 19/32"
SWX 4'-7 17/32"
SWX 4'-7 15/32"
SWX 4'-7 13/32"
SWX 4'-7 11/32"
SWX 4'-7 9/32"
SWX 4'-7 7/32"
SWX 4'-7 5/32"
SWX 4'-7 3/32"
SWX 4'-7 1/32"
SWX 4'-6 31/32"
SWX 4'-6 29/32"
SWX 4'-6 27/32"
SWX 4'-6 25/32"
SWX 4'-6 23/32"
SWX 4'-6 21/32"
SWX 4'-6 19/32"
SWX 4'-6 17/32"
SWX 4'-6 15/32"
SWX 4'-6 13/32"
SWX 4'-6 11/32"
SWX 4'-6 9/32"
SWX 4'-6 7/32"
SWX 4'-6 5/32"
SWX 4'-6 3/32"
SWX 4'-6 1/32"
SWX 4'-5 31/32"
SWX 4'-5 29/32"
SWX 4'-5 27/32"
SWX 4'-5 25/32"
SWX 4'-5 23/32"
SWX 4'-5 21/32"
SWX 4'-5 19/32"
SWX 4'-5 17/32"
SWX 4'-5 15/32"
SWX 4'-5 13/32"
SWX 4'-5 11/32"
SWX 4'-5 9/32"
SWX 4'-5 7/32"
SWX 4'-5 5/32"
SWX 4'-5 3/32"
SWX 4'-5 1/32"
SWX 4'-4 31/32"
SWX 4'-4 29/32"
SWX 4'-4 27/32"
SWX 4'-4 25/32"
SWX 4'-4 23/32"
SWX 4'-4 21/32"
SWX 4'-4 19/32"
SWX 4'-4 17/32"
SWX 4'-4 15/32"
SWX 4'-4 13/32"
SWX 4'-4 11/32"
SWX 4'-4 9/32"
SWX 4'-4 7/32"
SWX 4'-4 5/32"
SWX 4'-4 3/32"
SWX 4'-4 1/32"
SWX 4'-3 31/32"
SWX 4'-3 29/32"
SWX 4'-3 27/32"
SWX 4'-3 25/32"
SWX 4'-3 23/32"
SWX 4'-3 21/32"
SWX 4'-3 19/32"
SWX 4'-3 17/32"
SWX 4'-3 15/32"
SWX 4'-3 13/32"
SWX 4'-3 11/32"
SWX 4'-3 9/32"
SWX 4'-3 7/32"
SWX 4'-3 5/32"
SWX 4'-3 3/32"
SWX 4'-3 1/32"
SWX 4'-2 31/32"
SWX 4'-2 29/32"
SWX 4'-2 27/32"
SWX 4'-2 25/32"
SWX 4'-2 23/32"
SWX 4'-2 21/32"
SWX 4'-2 19/32"
SWX 4'-2 17/32"
SWX 4'-2 15/32"
SWX 4'-2 13/32"
SWX 4'-2 11/32"
SWX 4'-2 9/32"
SWX 4'-2 7/32"
SWX 4'-2 5/32"
SWX 4'-2 3/32"
SWX 4'-2 1/32"
SWX 4'-1 31/32"
SWX 4'-1 29/32"
SWX 4'-1 27/32"
SWX 4'-1 25/32"
SWX 4'-1 23/32"
SWX 4'-1 21/32"
SWX 4'-1 19/32"
SWX 4'-1 17/32"
SWX 4'-1 15/32"
SWX 4'-1 13/32"
SWX 4'-1 11/32"
SWX 4'-1 9/32"
SWX 4'-1 7/32"
SWX 4'-1 5/32"
SWX 4'-1 3/32"
SWX 4'-1 1/32"
SWX 4'-0 31/32"
SWX 4'-0 29/32"
SWX 4'-0 27/32"
SWX 4'-0 25/32"
SWX 4'-0 23/32"
SWX 4'-0 21/32"
SWX 4'-0 19/32"
SWX 4'-0 17/32"
SWX 4'-0 15/32"
SWX 4'-0 13/32"
SWX 4'-0 11/32"
SWX 4'-0 9/32"
SWX 4'-0 7/32"
SWX 4'-0 5/32"
SWX 4'-0 3/32"
SWX 4'-0 1/32"
SWX 3'-11 31/32"
SWX 3'-11 29/32"
SWX 3'-11 27/32"
SWX 3'-11 25/32"
SWX 3'-11 23/32"
SWX 3'-11 21/32"
SWX 3'-11 19/32"
SWX 3'-11 17/32"
SWX 3'-11 15/32"
SWX 3'-11 13/32"
SWX 3'-11 11/32"
SWX 3'-11 9/32"
SWX 3'-11 7/32"
SWX 3'-11 5/32"
SWX 3'-11 3/32"
SWX 3'-11 1/32"
SWX 3'-10 31/32"
SWX 3'-10 29/32"
SWX 3'-10 27/32"
SWX 3'-10 25/32"
SWX 3'-10 23/32"
SWX 3'-10 21/32"
SWX 3'-10 19/32"
SWX 3'-10 17/32"
SWX 3'-10 15/32"
SWX 3'-10 13/32"
SWX 3'-10 11/32"
SWX 3'-10 9/32"
SWX 3'-10 7/32"
SWX 3'-10 5/32"
SWX 3'-10 3/32"
SWX 3'-10 1/32"
SWX 3'-9 31/32"
SWX 3'-9 29/32"
SWX 3'-9 27/32"
SWX 3'-9 25/32"
SWX 3'-9 23/32"
SWX 3'-9 21/32"
SWX 3'-9 19/32"
SWX 3'-9 17/32"
SWX 3'-9 15/32"
SWX 3'-9 13/32"
SWX 3'-9 11/32"
SWX 3'-9 9/32"
SWX 3'-9 7/32"
SWX 3'-9 5/32"
SWX 3'-9 3/32"
SWX 3'-9 1/32"
SWX 3'-8 31/32"
SWX 3'-8 29/32"
SWX 3'-8 27/32"
SWX 3'-8 25/32"
SWX 3'-8 23/32"
SWX 3'-8 21/32"
SWX 3'-8 19/32"
SWX 3'-8 17/32"
SWX 3'-8 15/32"
SWX 3'-8 13/32"
SWX 3'-8 11/32"
SWX 3'-8 9/32"
SWX 3'-8 7/32"
SWX 3'-8 5/32"
SWX 3'-8 3/32"
SWX 3'-8 1/32"
SWX 3'-7 31/32"
SWX 3'-7 29/32"
SWX 3'-7 27/32"
SWX 3'-7 25/32"
SWX 3'-7 23/32"
SWX 3'-7 21/32"
SWX 3'-7 19/32"
SWX 3'-7 17/32"
SWX 3'-7 15/32"
SWX 3'-7 13/32"
SWX 3'-7 11/32"
SWX 3'-7 9/32"
SWX 3'-7 7/32"
SWX 3'-7 5/32"
SWX 3'-7 3/32"
SWX 3'-7 1/32"
SWX 3'-6 31/32"
SWX 3'-6 29/32"
SWX 3'-6 27/32"
SWX 3'-6 25/32"
SWX 3'-6 23/32"
SWX 3'-6 21/32"
SWX 3'-6 19/32"
SWX 3'-6 17/32"
SWX 3'-6 15/32"
SWX 3'-6 13/32"
SWX 3'-6 11/32"
SWX 3'-6 9/32"
SWX 3'-6 7/32"
SWX 3'-6 5/32"
SWX 3'-6 3/32"
SWX 3'-6 1/32"
SWX 3'-5 31/32"
SWX 3'-5 29/32"
SWX 3'-5 27/32"
SWX 3'-5 25/32"
SWX 3'-5 23/32"
SWX 3'-5 21/32"
SWX 3'-5 19/32"
SWX 3'-5 17/32"
SWX 3'-5 15/32"
SWX 3'-5 13/32"
SWX 3'-5 11/32"
SWX 3'-5 9/32"
SWX 3'-5 7/32"
SWX 3'-5 5/32"
SWX 3'-5 3/32"
SWX 3'-5 1/32"
SWX 3'-4 31/32"
SWX 3'-4 29/32"
SWX 3'-4 27/32"
SWX 3'-4 25/32"
SWX 3'-4 23/32"
SWX 3'-4 21/32"
SWX 3'-4 19/32"
SWX 3'-4 17/32"
SWX 3'-4 15/32"
SWX 3'-4 13/32"
SWX 3'-4 11/32"
SWX 3'-4 9/32"
SWX 3'-4 7/32"
SWX 3'-4 5/32"
SWX 3'-4 3/32"
SWX 3'-4 1/32"
SWX 3'-3 31/32"
SWX 3'-3 29/32"
SWX 3'-3 27/32"
SWX 3'-3 25/32"
SWX 3'-3 23/32"
SWX 3'-3 21/32"
SWX 3'-3 19/32"
SWX 3'-3 17/32"
SWX 3'-3 15/32"
SWX 3'-3 13/32"
SWX 3'-3 11/32"
SWX 3'-3 9/32"
SWX 3'-3 7/32"
SWX 3'-3 5/32"
SWX 3'-3 3/32"
SWX 3'-3 1/32"
SWX 3'-2 31/32"
SWX 3'-2 29/32"
SWX 3'-2 27/32"
SWX 3'-2 25/32"
SWX 3'-2 23/32"
SWX 3'-2 21/32"
SWX 3'-2 19/32"
SWX 3'-2 17/32"
SWX 3'-2 15/32"
SWX 3'-2 13/32"
SWX 3'-2 11/32"
SWX 3'-2 9/32"
SWX 3'-2 7/32"
SWX 3'-2 5/32"
SWX 3'-2 3/32"
SWX 3'-2 1/32"
SWX 3'-1 31/32"
SWX 3'-1 29/32"
SWX 3'-1 27/32"
SWX 3'-1 25/32"
SWX 3'-1 23/32"
SWX 3'-1 21/32"
SWX 3'-1 19/32"
SWX 3'-1 17/32"
SWX 3'-1 15/32"
SWX 3'-1 13/32"
SWX 3'-1 11/32"
SWX 3'-1 9/32"
SWX 3'-1 7/32"
SWX 3'-1 5/32"
SWX 3'-1 3/32"
SWX 3'-1 1/32"
SWX 3'-0 31/32"
SWX 3'-0 29/32"
SWX 3'-0 27/32"
SWX 3'-0 25/32"
SWX 3'-0 23/32"
SWX 3'-0 21/32"
SWX 3'-0 19/32"
SWX 3'-0 17/32"
SWX 3'-0 15/32"
SWX 3'-0 13/32"
SWX 3'-0 11/32"
SWX 3'-0 9/32"
SWX 3'-0 7/32"
SWX 3'-0 5/32"
SWX 3'-0 3/32"
SWX 3'-0 1/32"
SWX 2'-11 31/32"
SWX 2'-11 29/32"
SWX 2'-11 27/32"
SWX 2'-11 25/32"
SWX 2'-11 23/32"
SWX 2'-11 21/32"
SWX 2'-11 19/32"
SWX 2'-11 17/32"
SWX 2'-11 15/32"
SWX 2'-11 13/32"
SWX 2'-11 11/32"
SWX 2'-11 9/32"
SWX 2'-11 7/32"
SWX 2'-11 5/32"
SWX 2'-11 3/32"
SWX 2'-11 1/32"
SWX 2'-10 31/32"
SWX 2'-10 29/32"
SWX 2'-10 27/32"
SWX 2'-10 25/32"
SWX 2'-10 23/32"
SWX 2'-10 21/32"
SWX 2'-10 19/32"
SWX 2'-10 17/32"
SWX 2'-10 15/32"
SWX 2'-10 13/32"
SWX 2'-10 11/32"
SWX 2'-10 9/32"
SWX 2'-10 7/32"
SWX 2'-10 5/32"
SWX 2'-10 3/32"
SWX 2'-10 1/32"
SWX 2'-9 31/32"
SWX 2'-9 29/32"
SWX 2'-9 27/32"
SWX 2'-9 25/32"
SWX 2'-9 23/32"
SWX 2'-9 21/32"
SWX 2'-9 19/32"
SWX 2'-9 17/32"
SWX 2'-9 15/32"
SWX 2'-9 13/32"
SWX 2'-9 11/32"
SWX 2'-9 9/32"
SWX 2'-9 7/32"
SWX 2'-9 5/32"
SWX 2'-9 3/32"
SWX 2'-9 1/32"
SWX 2'-8 31/32"
SWX 2'-8 29/32"
SWX 2'-8 27/32"
SWX 2'-8 25/32"
SWX 2'-8 23/32"
SWX 2'-8 21/32"
SWX 2'-8 19/32"
SWX 2'-8 17/32"
SWX 2'-8 15/32"
SWX 2'-8 13/32"
SWX 2'-8 11/32"
SWX 2'-8 9/32"
SWX 2'-8 7/32"
SWX 2'-8 5/32"
SWX 2'-8 3/32"
SWX 2'-8 1/32"
SWX 2'-7 31/32"
SWX 2'-7 29/32"
SWX 2'-7 27/32"
SWX 2'-7 25/32"
SWX 2'-7 23/32"
SWX 2'-7 21/32"
SWX 2'-7 19/32"
SWX 2'-7 17/32"
SWX 2'-7 15/32"
SWX 2'-7 13/32"
SWX 2'-7 11/32"
SWX 2'-7 9/32"
SWX 2'-7 7/32"
SWX 2'-7 5/32"
SWX 2'-7 3/32"
SWX 2'-7 1/32"
SWX 2'-6 31/32"
SWX 2'-6 29/32"
SWX 2'-6 27/32"
SWX 2'-6 25/32"
SWX 2'-6 23/32"
SWX 2'-6 21/32"
SWX 2'-6 19/32"
SWX 2'-6 17/32"
SWX 2'-6 15/32"
SWX 2'-6 13/32"
SWX 2'-6 11/32"
SWX 2'-6 9/32"
SWX 2'-6 7/32"
SWX 2'-6 5/32"
SWX 2'-6 3/32"
SWX 2'-6 1/32"
SWX 2'-5 31/32"
SWX 2'-5 29/32"
SWX 2'-5 27/32"
SWX 2'-5 25/32"
SWX 2'-5 23/32"
SWX 2'-5 21/32"
SWX 2'-5 19/32"
SWX 2'-5 17/32"
SWX 2'-5 15/32"
SWX 2'-5 13/32"
SWX 2'-5 11/32"
SWX 2'-5 9/32"
SWX 2'-5 7/32"
SWX 2'-5 5/32"
SWX 2'-5 3/32"
SWX 2'-5 1/32"
SWX 2'-4 31/32"
SWX 2'-4 29/32"
SWX 2'-4 27/32"
SWX 2'-4 25/32"
SWX 2'-4 23/32"
SWX 2'-4 21/32"
SWX 2'-4 19/32"
SWX 2'-4 17/32"
SWX 2'-4 15/32"
SWX 2'-4 13/32"
SWX 2'-4 11/32"
SWX 2'-4 9/32"
SWX 2'-4 7/32"
SWX 2'-4 5/32"
SWX 2'-4 3/32"
SWX 2'-4 1/32"
SWX 2'-3 31/32"
SWX 2'-3 29/32"
SWX 2'-3 27/32"
SWX 2'-3 25/32"
SWX 2'-3 23/32"
SWX 2'-3 21/32"
SWX 2'-3 19/32"
SWX 2'-3 17/32"
SWX 2'-3 15/32"
SWX 2'-3 13/32"
SWX 2'-3 11/32"
SWX 2'-3 9/32"
SWX 2'-3 7/32"
SWX 2'-3 5/32"
SWX 2'-3 3/32"
SWX 2'-3 1/32"
SWX 2'-2 31/32"
SWX 2'-2 29/32"
SWX 2'-2 27/32"
SWX 2'-2 25/32"
SWX 2'-2 23/32"
SWX 2'-2 21/32"
SWX 2'-2 19/32"
SWX 2'-2 17/32"
SWX 2'-2 15/32"
SWX 2'-2 13/32"
SWX 2'-2 11/32"
SWX 2'-2 9/32"
SWX 2'-2 7/32"
SWX 2'-2 5/32"
SWX 2'-2 3/32"
SWX 2'-2 1/32"
SWX 2'-1 31/32"
SWX 2'-1 29/32"
SWX 2'-1 27/32"
SWX 2'-1 25/32"
SWX 2'-1 23/32"
SWX 2'-1 21/32"
SWX 2'-1 19/32"
SWX 2'-1 17/32"
SWX 2'-1 15/32"
SWX 2'-1 13/32"
SWX 2'-1 11/32"
SWX 2'-1 9/32"
SWX 2'-1 7/32"
SWX 2'-1 5/32"
SWX 2'-1 3/32"
SWX 2'-1 1/32"
SWX 2'-0 31/32"
SWX 2'-0 29/32"
SWX 2'-0 27/32"
SWX 2'-0 25/32"
SWX 2'-0 23/32"
SWX 2'-0 21/32"
SWX 2'-0 19/32"
SWX 2'-0 17/32"
SWX 2'-0 15/32"
SWX 2'-0 13/32"
SWX 2'-0 11/32"
SWX 2'-0 9/32"
SWX 2'-0 7/32"
SWX 2'-0 5/32"
SWX 2'-0 3/32"
SWX 2'-0 1/32"
SWX 1'-11 31/32"
SWX 1'-11 29/32"
SWX 1'-11 27/32"
SWX 1'-11 25/32"
SWX 1'-11 23/32"
SWX 1'-11 21/32"
SWX 1'-11 19/32"
SWX 1'-11 17/32"
SWX 1'-11 15/32"
SWX 1'-11 13/32"
SWX 1'-11 11/32"
SWX 1'-11 9/32"
SWX 1'-11 7/32"
SWX 1'-11 5/32"
SWX 1'-11 3/32"
SWX 1'-11 1/32"
SWX 1'-10 31/32"
SWX 1'-10 29/32"
SWX 1'-10 27/32"
SWX 1'-10 25/32"
SWX 1'-10 23/32"
SWX 1'-10 21/32"
SWX 1'-10 19/32"
SWX 1'-10 17/32"
SWX 1'-10 15/32"
SWX 1'-10 13/32"
SWX 1'-10 11/32"
SWX 1'-10 9/32"
SWX 1'-10 7/32"
SWX 1'-10 5/32"
SWX 1'-10 3/32"
SWX 1'-10 1/32"
SWX 1'-9 31/32"
SWX 1'-9 29/32"
SWX 1'-9 27/32"
SWX 1'-9 25/32"
SWX 1'-9 23/32"
SWX 1'-9 21/32"
SWX 1'-9 19/32"
SWX 1'-9 17/32"
SWX 1'-9 15/32"
SWX 1'-9 13/32"
SWX 1'-9 11/32"
SWX 1'-9 9/32"
SWX 1'-9 7/32"
SWX 1'-9 5/32"
SWX 1'-9 3/32"
SWX 1'-9 1/32"
SWX 1'-8 31/32"
SWX 1'-8 29/32"
SWX 1'-8 27/32"
SWX 1'-8 25/32"
SWX 1'-8 23/32"
SWX 1'-8 21/32"
SWX 1'-8 19/32"
SWX 1'-8 17/32"
SWX 1'-8 15/32"
SWX 1'-8 13/32"
SWX 1'-8 11/32"
SWX 1'-8 9/32"
SWX 1'-8 7/32"
SWX 1'-8 5/32"
SWX 1'-8 3/32"
SWX 1'-8 1/32"
SWX 1'-7 31/32"
SWX 1'-7 29/32"
SWX 1'-7 27/32"
SWX 1'-7 25/32"
SWX 1'-7 23/32"
SWX 1'-7 21/32"
SWX 1'-7 19/32"
SWX 1'-7 17/32"
SWX 1'-7 15/32"
SWX 1'-7 13/32"
SWX 1'-7 11/32"
SWX 1'-7 9/32"
SWX 1'-7 7/32"
SWX 1'-7 5/32"
SWX 1'-7 3/32"
SWX 1'-7 1/32"
SWX 1'-6 31/32"
SWX 1'-6 29/32"
SWX 1'-6 27/32"
SWX 1'-6 25/32"
SWX 1'-6 23/32"
SWX 1'-6 21/32"
SWX 1'-6 19/32"
SWX 1'-6 17/32"
SWX 1'-6 15/32"
SWX 1'-6 13/32"
SWX 1'-6 11/32"
SWX 1'-6 9/32"
SWX 1'-6 7/32"
SWX 1'-6 5/32"
SWX 1'-6 3/32"
SWX 1'-6 1/32"
SWX 1'-5 31/32"
SWX 1'-5 29/32"
SWX 1'-5 27/32"
SWX 1'-5 25/32"
SWX 1'-5 23/32"
SWX 1'-5 21/32"
SWX 1'-5 19/32"
SWX 1'-5 17/32"
SWX 1'-5 15/32"
SWX 1'-5 13/32"
SWX 1'-5 11/32"
SWX 1'-5 9/32"
SWX 1'-5 7/32"
SWX 1'-5 5/32"
SWX 1'-5 3/32"
SWX 1'-5 1/32"
SWX 1'-4 31/32"
SWX 1'-4 29/32"
SWX 1'-4 27/32"
SWX 1'-4 25/32"
SWX 1'-4 23/32"
SWX 1'-4 21/32"
SWX 1'-4 19/32"
SWX 1'-4 17/32"
SWX 1'-4 15/32"
SWX 1'-4 13/32"
SWX 1'-4 11/32"
SWX 1'-4 9/32"
SWX 1'-4 7/32"
SWX 1'-4 5/32"
SWX 1'-4 3/32"
SWX 1'-4 1/32"
SWX 1'-3 31/32"
SWX 1'-3 29/32"
SWX 1'-3 27/32"
SWX 1'-3 25/32"
SWX 1'-3 23/32"
SWX 1'-3 21/32"
SWX 1'-3 19/32"
SWX 1'-3 17/32"
SWX 1'-3 15/32"
SWX 1'-3 13/32"
SWX 1'-3 11/32"
SWX 1'-3 9/32"
SWX 1'-3 7/32"
SWX 1'-3 5/32"
SWX 1'-3 3/32"
SWX 1'-3 1/32"
SWX 1'-2 31/32"
SWX 1'-2 29/32"
SWX 1'-2 27/32"
SWX 1'-2 25/32"
SWX 1'-2 23/32"
SWX 1'-2 21/32"
SWX 1'-2 19/32"
SWX 1'-2 17/32"
SWX 1'-2 15/32"
SWX 1'-2 13/32"
SWX 1'-2 11/32"
SWX 1'-2 9/32"
SWX 1'-2 7/32"
SWX 1'-2 5/32"
SWX 1'-2 3/32"
SWX 1'-2 1/32"
SWX 1'-1 31/32"
SWX 1'-1 29/32"
SWX 1'-1 27/32"
SWX 1'-1 25/32"
SWX 1'-1 23/32"
SWX 1'-1 21/32"
SWX 1'-1 19/32"
SWX 1'-1 17/32"
SWX 1'-1 15/32"
SWX 1'-1 13/32"
SWX 1'-1 11/32"
SWX 1'-1 9/32"
SWX 1'-1 7/32"
SWX 1'-1 5/32"
SWX 1'-1 3/32"
SWX 1'-1 1/32"
SWX 1'-0 31/32"
SWX 1'-0 29/32"
SWX 1'-0 27/32"
SWX 1'-0 25/32"
SWX 1'-0 23/32"
SWX 1'-0 21/32"
SWX 1'-0 19/32"
SWX 1'-0 17/32"
SWX 1'-0 15/32"
SWX 1'-0 13/32"
SWX 1'-0 11/32"
SWX 1'-0 9/32"
SWX 1'-0 7/32"
SWX 1'-0 5/32"
SWX 1'-0 3/32"
SWX 1'-0 1/32"
SWX 0'-11 31/32"
SWX 0'-11 29/32"
SWX 0'-11 27/32"
SWX 0'-11 25/32"
SWX 0'-11 23/32"
SWX 0'-11 21/32"
SWX 0'-11 19/32"
SWX 0'-11 17/32"
SWX 0'-11 15/32"
SWX 0'-11 13/32"
SWX 0'-11 11/32"
SWX 0'-11 9/32"
SWX 0'-11 7/32"
SWX 0'-11 5/32"
SWX 0'-11 3/32"
SWX 0'-11 1/32"
SWX 0'-10 31/32"
SWX 0'-10 29/32"
SWX 0'-10 27/32"
SWX 0'-10 25/32"
SWX 0'-10 23/32"
SWX 0'-10 21/32"
SWX 0'-10 19/32"
SWX 0'-10 17/32"
SWX 0'-10 15/32"
SWX 0'-10 13/32"
SWX 0'-10 11/32"
SWX 0'-10 9/32"
SWX 0'-10 7/32"
SWX 0'-10 5/32"
SWX 0'-10 3/32"
SWX 0'-10 1/32"
SWX 0'-9 31/32"
SWX 0'-9 29/32"
SWX 0'-9 27/32"
SWX 0'-9 25/32"
SWX 0'-9 23/32"
SWX 0'-9 21/32"
SWX 0'-9 19/32"
SWX 0'-9 17/32"
SWX 0'-9 15/32"
SWX 0'-9 13/32"
SWX 0'-9 11/32"
SWX 0'-9 9/32"
SWX 0'-9 7/32"
SWX 0'-9 5/32"
SWX 0'-9 3/32"
SWX 0'-9 1/32"
SWX 0'-8 31/32"
SWX 0'-8 29/32"
SWX 0'-8 27/32"
SWX 0'-8 25/32"
SWX 0'-8 23/32"
SWX 0'-8 21/32"
SWX 0'-8 19/32"
SWX 0'-8 17/32"
SWX 0'-8 15/32"
SWX 0'-8 13/32"
SWX 0'-8 11/32"
SWX 0'-8 9/32"
SWX 0'-8 7/32"
SWX 0'-8 5/32"
SWX 0'-8 3/32"
SWX 0'-8 1/32"
SWX 0'-7 31/32"
SWX 0'-7 29/32"
SWX 0'-7 27/32"
SWX 0'-7 25/32"
SWX 0'-7 23/32"
SWX 0'-7 21/32"
SWX 0'-7 19/32"
SWX 0'-7 17/32"
SWX 0'-7 15/32"
SWX 0'-7 13/32"
SWX 0'-7 11/32"
SWX 0'-7 9/32"
SWX 0'-7 7/32"
SWX 0'-7 5/32"
SWX 0'-7 3/32"
SWX 0'-7 1/32"
SWX 0'-6 31/32"
SWX 0'-6 29/32"
SWX 0'-6 27/32"
SWX 0'-6 25/32"
SWX 0'-6 23/32"
SWX 0'-6 21/32"
SWX 0'-6 19/32"
SWX 0'-6 17/32"
SWX 0'-6 15/32"
SWX 0'-6 13/32"
SWX 0'-6 11/32"
SWX 0'-6 9/32"
SWX 0'-6 7/32"
SWX 0'-6 5/32"
SWX 0'-6 3/32"
SWX 0'-6 1/32"
SWX 0'

THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS ON THE PROJECT TO CLEARLY DEFINE ALL OF THE REQUIREMENTS FOR THE CONSTRUCTION. WHERE CONFLICTS OCCUR CONTACT ARCHITECT FOR CLARIFICATION.

THE STRUCTURAL ENGINEERS SEAL ON THIS DRAWING INDICATES THAT THE INFORMATION SHOWN AND THE CALCULATIONS PERTAINING TO THAT INFORMATION HAVE BEEN PREPARED BY QUALIFIED PEOPLE UNDER THE DIRECTION OF THE ENGINEER-OF-RECORD. THE SEAL DOES NOT IMPLY RESPONSIBILITY FOR INFORMATION PREPARED BY OTHERS NOR FOR ANY INFORMATION NOT SHOWN ON THIS DRAWING AND SUCH RESPONSIBILITY IS SPECIFICALLY DISCLAIMED. ON PHASED PROJECTS, DRAWINGS THAT ARE ISSUED BUT NOT SEALED SHALL BE CONSIDERED TO BE PRELIMINARY IN NATURE AND ARE ISSUED FOR INFORMATION ONLY.

Mon 02/09/2026 09:35:17 AM

LOAD KEY LEGEND

LOAD AREA	PATTERN	SELF WEIGHT (psf) (NOTES 1&2)	SUPERIMPOSED LOADS: DEAD LOAD (psf) (NOTE 3)	LIVE LOAD (psf) (NOTES 5&7)	SNOW LOAD (psf) (NOTES 6&7)	VERT WIND LOAD (psf) (NOTES 8&10)	HYDROSTATIC UPLIFT LOAD (NOTES 9&10)	LIVE LOAD REDUCTION	DESCRIPTION OF LOAD	NOTES
1		7	35	40	--	--	--	YES	TYPICAL RESIDENTIAL FLOOR	--
2		6	40	60	--	--	--	YES	TYPICAL BALCONY	SEE NOTES 1,2,4,5
3		6	20	20	73 + Drift	--	--	YES	TYPICAL ROOF	
4		5	35	100	--	--	--	NO	STAIRS/COMMONS	
5		5	30	40	--	--	--	YES	LOFT SPACE	
6										

Wall Summary

Load #	Description of Load	Self Weight (psf)	Superimposed Dead Load (psf)
1	Interior Wall	4	6
2	Exterior Wall (Metal Siding)	3	7
3	Elevator Core	51	0
4	Exterior Wall (Stucco)	5	12
5	Exterior Wall	0	0

Level 5 - Walls Above

Description	Quantity	Unit
Wall-1a_2x6-Int-Brng	871.4706000	ft
Wall-1b_2x6-Int-Brng	148.0402000	ft
Wall-2a_2x6-Ext-Brg-Mtl-Sdng	333.6400000	ft
Wall-2b_2x6-Ext-Brg-Mtl-Sdng	244.4933000	ft
Wall-3_CMU-8"	34.8806800	ft

1 S0105 LEVEL 5 FRAMING PLAN

1/8" = 1'-0"

N

WOOD FLOOR FRAMING PLAN NOTES:

1. *TYPICAL FLOOR IS ARCHITECTURAL FINISHES OVER 1 1/2" MAX GYPCRETE TOPPING SLAB OVER 3/4" T&G OSB/PLYWOOD FLOOR SHEATHING OVER PREMANUFACTURED WOOD FLOOR TRUSSES. TYPICAL FLOOR SHEATHING ATTACHMENT IS GLUE AND NAIL WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD, UNO.*
2. *TYPICAL EXTERIOR WALL IS 1/2" OSB/PLYWOOD WALL SHEATHING ON 2x6 DFL No2@SPACING SHOWN IN BEARING WALL SCHEDULE, UNO. ATTACH WALL SHEATHING WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD UNLESS DESIGNATED AS A SHEAR WALL. RE: SHEAR WALL SCHEDULE FOR SHEAR WALL NAILING.*
3. *TYPICAL INTERIOR STRUCTURAL WALL IS 2x6 DFL No2 @SPACING SHOWN IN BEARING WALL SCHEDULE, UNO.*
4. *TYPICAL COLUMN IS (3)2x6 DFL No2, UNO.*
5. *ALL LVL MATERIAL IS 1 3/4" THICK, UNO.*
6. *RE: "TYPICAL WOOD HEADER TABLE" FOR HEADER SIZING AND NUMBER OF TRIMMER STUDS WHERE INDICATED "HDR" ON PLAN.*
7. *WHEN NOT SPECIFIED AS "HDR", MINIMUM NUMBER OF KING STUDS EACH SIDE OF OPENING IS EQUAL TO HALF THE NUMBER OF STUDS INTERRUPTED BY HEADER PLUS ONE, (2) MIN. RE: "TYPICAL WOOD HEADER TABLE" FOR ATTACHMENT OF HEADER TO KING STUDS.*
8. *RE: ARCH FOR WINDOW AND DOOR LOCATIONS.*
9. *COORDINATE FRAMING LAYOUT WITH LIGHTING LOCATIONS, RE: ARCH.*
10. *RE: SHEET S0001 FOR GENERAL NOTES AND LEGENDS.*
11. *RE: SHEET S0011 FOR LOAD KEYS.*
12. *RE: SHEET S0021 FOR TYPICAL DETAILS.*
13. *RE: SHEET S0501 FOR SHEAR WALL, HOLDOWN, HANGER, AND BASE PLATE SCHEDULES.*

APPROVAL STAMPS:

No.	Date	Description

SUBMISSIONS & REVISIONS

OWNER

MAY REIGLER PROPERTIES
2201 Wisconsin Ave NW Suite 200
Washington, DC 20007
www.mayriegler.com

ARCHITECT

KEVIN & ASAKO SPERRY ARCHITECTURE
3318 N. Columbus Street
Arlington, VA 22207
T.312.636.3248 / 312.636.4252
www.kasa-arch.com

GENERAL CONTRACTOR

DENEUVE CONSTRUCTION
2344 Spruce Street
Boulder, CO 80302
T: 303.444.6633

CIVIL ENGINEER

LANDMARK ENGINEERING
141 9th Street, PO Box 774943
Steamboat Springs, CO 80477
T.970.871.9494

LANDSCAPE ARCHITECT

STRUCTURAL ENGINEER

KL&A ENGINEERS & BUILDERS
1717 Washington Ave.
Golden, CO 80401
T. 303.384.9910

© 2022 KL&A, INC

M.E.P. & F.P. ENGINEERS

BOULDER ENGINEERING
1717 15th Street
Boulder, CO 80302
T. 303.444.6038

INTERIOR DESIGNER:

JOHNSON NATHAN STROHE
1600 Wynkoop St. Suite 100
Denver, CO 80202
T.303.892.7062

PROJECT LOCATION

STEAMBOAT BASECAMP II

STEAMBOAT BASECAMP, LOT 2
STEAMBOAT SPRINGS, CO 80487

DRAWING TITLE

LEVEL 5 FRAMING PLAN

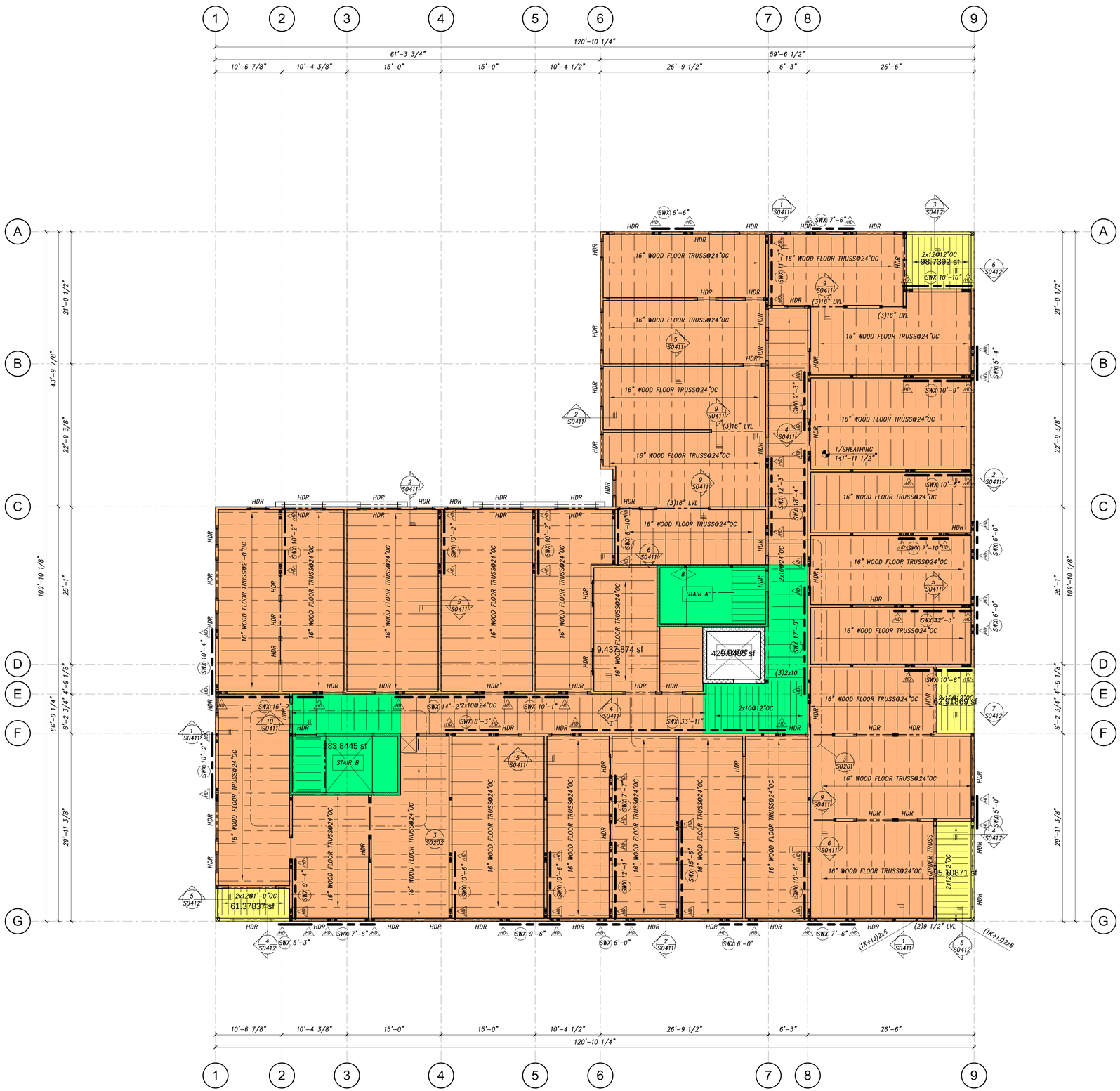
SEAL

DATE: 11/25/25
DRAWN BY: Author
CHECKED BY: Checker
PROJECT NO:

DRAWING NO:

S0105

COPYRIGHT 2019



LOAD KEY LEGEND

LOAD AREA	PATTERN	SELF WEIGHT (psf) (NOTES 1&2)	SUPERIMPOSED LOADS: DEAD LOAD (psf) (NOTE 3)	LIVE LOAD (psf) (NOTES 5&7)	SNOW LOAD (psf) (NOTES 6&7)	VERT WIND LOAD (psf) (NOTES 8&10)	HYDROSTATIC UPLIFT LOAD (NOTES 9&10)	LIVE LOAD REDUCTION	DESCRIPTION OF LOAD	NOTES
1		7	35	40	--	--	--	YES	TYPICAL RESIDENTIAL FLOOR	--
2		6	40	60	--	--	--	YES	TYPICAL BALCONY	SEE NOTES 1,2,4,5
3		6	20	20	73 + Drift	--	--	YES	TYPICAL ROOF	
4		5	35	100	--	--	--	NO	STAIRS/COMMONS	
5		5	30	40	--	--	--	YES	LOFT SPACE	
6										

Wall Summary

Load #	Description of Load	Self Weight (psf)	Superimposed Dead Load (psf)
1	Interior Wall	4	6
2	Exterior Wall (Metal Siding)	3	7
3	Elevator Core	51	0
4	Exterior Wall (Stucco)	5	12
5	Exterior Wall	0	0

Level 5 - Areas

Description	Quantity	Unit
Load #1	9,437.87400	sf
Load #2	318.14470	sf
Load #4	713.69270	sf

1 S0105 LEVEL 5 FRAMING PLAN

1/8" = 1'-0"

N

WOOD FLOOR FRAMING PLAN NOTES:

1. *TYPICAL FLOOR IS ARCHITECTURAL FINISHES OVER 1 1/2" MAX GYPCRETE TOPPING SLAB OVER 3/4" T&G OSB/PLYWOOD FLOOR SHEATHING OVER PREMANUFACTURED WOOD FLOOR TRUSSES. TYPICAL FLOOR SHEATHING ATTACHMENT IS GLUE AND NAIL WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD, UNO.*
2. *TYPICAL EXTERIOR WALL IS 1/2" OSB/PLYWOOD WALL SHEATHING ON 2x6 DFL No2@SPACING SHOWN IN BEARING WALL SCHEDULE, UNO. ATTACH WALL SHEATHING WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD UNLESS DESIGNATED AS A SHEAR WALL. RE: SHEAR WALL SCHEDULE FOR SHEAR WALL NAILING.*
3. *TYPICAL INTERIOR STRUCTURAL WALL IS 2x6 DFL No2 @SPACING SHOWN IN BEARING WALL SCHEDULE, UNO.*
4. *TYPICAL COLUMN IS (3)2x6 DFL No2, UNO.*
5. *ALL LVL MATERIAL IS 1 3/4" THICK, UNO.*
6. *RE: "TYPICAL WOOD HEADER TABLE" FOR HEADER SIZING AND NUMBER OF TRIMMER STUDS WHERE INDICATED "HDR" ON PLAN.*
7. *WHEN NOT SPECIFIED AS "HDR", MINIMUM NUMBER OF KING STUDS EACH SIDE OF OPENING IS EQUAL TO HALF THE NUMBER OF STUDS INTERRUPTED BY HEADER PLUS ONE, (2) MIN. RE: "TYPICAL WOOD HEADER TABLE" FOR ATTACHMENT OF HEADER TO KING STUDS.*
8. *RE: ARCH FOR WINDOW AND DOOR LOCATIONS.*
9. *COORDINATE FRAMING LAYOUT WITH LIGHTING LOCATIONS, RE: ARCH.*
10. *RE: SHEET S0001 FOR GENERAL NOTES AND LEGENDS.*
11. *RE: SHEET S0011 FOR LOAD KEYS.*
12. *RE: SHEET S0021 FOR TYPICAL DETAILS.*
13. *RE: SHEET S0501 FOR SHEAR WALL, HOLDOWN, HANGER, AND BASE PLATE SCHEDULES.*

THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS ON THE PROJECT TO CLEARLY DEFINE ALL OF THE REQUIREMENTS FOR THE CONSTRUCTION. WHERE CONFLICTS OCCUR CONTACT ARCHITECT FOR CLARIFICATION.

THE STRUCTURAL ENGINEERS SEAL ON THIS DRAWING INDICATES THAT THE INFORMATION SHOWN AND THE CALCULATIONS PERTAINING TO THAT INFORMATION HAVE BEEN PREPARED BY QUALIFIED PEOPLE UNDER THE DIRECTION OF THE ENGINEER-OF-RECORD. THE SEAL DOES NOT IMPLY RESPONSIBILITY FOR INFORMATION PREPARED BY OTHERS NOR FOR ANY INFORMATION NOT SHOWN ON THIS DRAWING AND SUCH RESPONSIBILITY IS SPECIFICALLY DISCLAIMED. ON PHASED PROJECTS, DRAWINGS THAT ARE ISSUED BUT NOT SEALED SHALL BE CONSIDERED TO BE PRELIMINARY IN NATURE AND ARE ISSUED FOR INFORMATION ONLY.

Mon 02/09/2026 09:35:17 AM

APPROVAL STAMPS:

No.	Date	Description

SUBMISSIONS & REVISIONS

OWNER

MAY REIGLER PROPERTIES
2201 Wisconsin Ave NW Suite 200
Washington, DC 20007
www.mayriegler.com

ARCHITECT

KEVIN & ASAKO SPERRY ARCHITECTURE
3318 N. Columbus Street
Arlington, VA 22207
T.312.636.3248 / 312.636.4252
www.kasa-arch.com

GENERAL CONTRACTOR

DENEUVE CONSTRUCTION
2344 Spruce Street
Boulder, CO 80302
T: 303.444.6633

CIVIL ENGINEER

LANDMARK ENGINEERING
141 9th Street, PO Box 774943
Steamboat Springs, CO 80477
T.970.871.9494

LANDSCAPE ARCHITECT

STRUCTURAL ENGINEER

KL&A ENGINEERS & BUILDERS
1717 Washington Ave.
Golden, CO 80401
T. 303.384.9910

© 2022 KL&A, INC

M.E.P. & F.P. ENGINEERS

BOULDER ENGINEERING
1717 15th Street
Boulder, CO 80302
T. 303.444.6038

INTERIOR DESIGNER:

JOHNSON NATHAN STROHE
1600 Wynkoop St., Suite 100
Denver, CO 80202
T.303.892.7062

PROJECT LOCATION

STEAMBOAT BASECAMP II

STEAMBOAT BASECAMP, LOT 2
STEAMBOAT SPRINGS, CO 80487

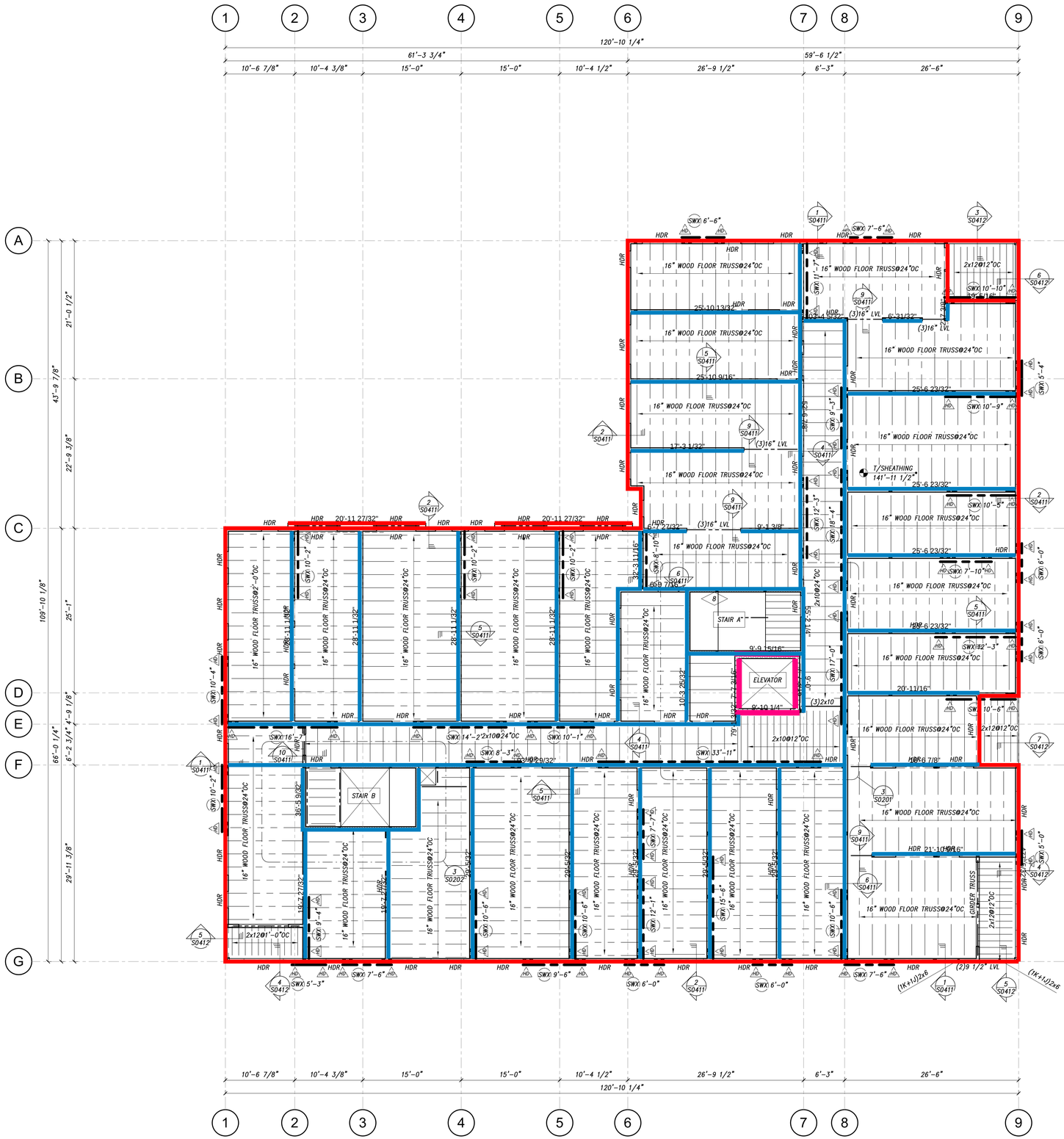
DRAWING TITLE

LEVEL 5 FRAMING PLAN

SEAL	DATE: 11/25/25
	DRAWN BY: Author
	CHECKED BY: Checker
	PROJECT NO:

DRAWING NO: **S0105**

COPYRIGHT 2019



LOAD KEY LEGEND

LOAD AREA	PATTERN	SELF WEIGHT (psf) (NOTES 1&2)	SUPERIMPOSED LOADS: DEAD LOAD (psf) (NOTE 3)	LIVE LOAD (psf) (NOTES 5&7)	SNOW LOAD (psf) (NOTES 6&7)	VERT WIND LOAD (psf) (NOTES 8&10)	HYDROSTATIC UPLIFT LOAD (NOTES 9&10)	LIVE LOAD REDUCTION	DESCRIPTION OF LOAD	NOTES
1		7	35	40	--	--	--	YES	TYPICAL RESIDENTIAL FLOOR	--
2		6	40	60	--	--	--	YES	TYPICAL BALCONY	SEE NOTES 1,2,4,5
3		6	20	20	73 + Drift	--	--	YES	TYPICAL ROOF	
4		5	35	100	--	--	--	NO	STAIRS/COMMONS	
5		5	30	40	--	--	--	YES	LOFT SPACE	
6										

Wall Summary

Load #	Description of Load	Self Weight (psf)	Superimposed Dead Load (psf)
1	Interior Wall	4	6
2	Exterior Wall (Metal Siding)	3	7
3	Elevator Core	51	0
4	Exterior Wall (Stucco)	5	12
5	Exterior Wall	0	0

Level 5 - Walls Below

Description	Quantity	Unit
Wall-1_2x6-Int-Brng	1,033.1380000	ft
Wall-2_2x6-Ext-Brg-Mtl-Sdng	538.0131000	ft
Wall-3_CMU-8"	34.8807000	ft

1 S0105 LEVEL 5 FRAMING PLAN

1/8" = 1'-0"

N

WOOD FLOOR FRAMING PLAN NOTES:

1. *TYPICAL FLOOR IS ARCHITECTURAL FINISHES OVER 1 1/2" MAX GYPCRETE TOPPING SLAB OVER 3/4" T&G OSB/PLYWOOD FLOOR SHEATHING OVER PREMANUFACTURED WOOD FLOOR TRUSSES. TYPICAL FLOOR SHEATHING ATTACHMENT IS GLUE AND NAIL WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD, UNO.*
2. *TYPICAL EXTERIOR WALL IS 1/2" OSB/PLYWOOD WALL SHEATHING ON 2x6 DFL No2@SPACING SHOWN IN BEARING WALL SCHEDULE, UNO. ATTACH WALL SHEATHING WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD UNLESS DESIGNATED AS A SHEAR WALL. RE: SHEAR WALL SCHEDULE FOR SHEAR WALL NAILING.*
3. *TYPICAL INTERIOR STRUCTURAL WALL IS 2x6 DFL No2 @SPACING SHOWN IN BEARING WALL SCHEDULE, UNO.*
4. *TYPICAL COLUMN IS (3)2x6 DFL No2, UNO..*
5. *ALL LVL MATERIAL IS 1 3/4" THICK, UNO.*
6. *RE: "TYPICAL WOOD HEADER TABLE" FOR HEADER SIZING AND NUMBER OF TRIMMER STUDS WHERE INDICATED "HDR" ON PLAN.*
7. *WHEN NOT SPECIFIED AS "HDR", MINIMUM NUMBER OF KING STUDS EACH SIDE OF OPENING IS EQUAL TO HALF THE NUMBER OF STUDS INTERRUPTED BY HEADER PLUS ONE, (2) MIN. RE: "TYPICAL WOOD HEADER TABLE" FOR ATTACHMENT OF HEADER TO KING STUDS.*
8. *RE: ARCH FOR WINDOW AND DOOR LOCATIONS.*
9. *COORDINATE FRAMING LAYOUT WITH LIGHTING LOCATIONS, RE: ARCH.*
10. *RE: SHEET S0001 FOR GENERAL NOTES AND LEGENDS.*
11. *RE: SHEET S0011 FOR LOAD KEYS.*
12. *RE: SHEET S0021 FOR TYPICAL DETAILS.*
13. *RE: SHEET S0501 FOR SHEAR WALL, HOLDOWN, HANGER, AND BASE PLATE SCHEDULES.*

APPROVAL STAMPS:

No.	Date	Description

SUBMISSIONS & REVISIONS

OWNER

MAY REIGLER PROPERTIES
2201 Wisconsin Ave NW Suite 200
Washington, DC 20007
www.mayriegler.com

ARCHITECT

KEVIN & ASAKO SPERRY ARCHITECTURE
3318 N. Columbus Street
Arlington, VA 22207
T.312.636.3248 / 312.636.4252
www.kasa-arch.com

GENERAL CONTRACTOR

DENEUVE CONSTRUCTION
2344 Spruce Street
Boulder, CO 80302
T: 303.444.6633

CIVIL ENGINEER

LANDMARK ENGINEERING
141 9th Street, PO Box 774943
Steamboat Springs, CO 80477
T.970.871.9494

LANDSCAPE ARCHITECT

STRUCTURAL ENGINEER

KL&A ENGINEERS & BUILDERS
1717 Washington Ave.
Golden, CO 80401
T. 303.384.9910
© 2022 KL&A, INC

M.E.P. & F.P. ENGINEERS

BOULDER ENGINEERING
1717 15th Street
Boulder, CO 80302
T. 303.444.6038

INTERIOR DESIGNER:

JOHNSON NATHAN STROHE
1600 Wynkoop St., Suite 100
Denver, CO 80202
T.303.892.7062

PROJECT LOCATION

STEAMBOAT BASECAMP II

STEAMBOAT BASECAMP, LOT 2
STEAMBOAT SPRINGS, CO 80487

DRAWING TITLE

LEVEL 5 FRAMING PLAN

SEAL

DATE: 11/25/25
DRAWN BY: Author
CHECKED BY: Checker
PROJECT NO:

DRAWING NO: **S0105**

COPYRIGHT 2019

THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS ON THE PROJECT TO CLEARLY DEFINE ALL OF THE REQUIREMENTS FOR THE CONSTRUCTION. WHERE CONFLICTS OCCUR CONTACT ARCHITECT FOR CLARIFICATION.

THE STRUCTURAL ENGINEERS SEAL ON THIS DRAWING INDICATES THAT THE INFORMATION SHOWN AND THE CALCULATIONS PERTAINING TO THAT INFORMATION HAVE BEEN PREPARED BY QUALIFIED PEOPLE UNDER THE DIRECTION OF THE ENGINEER-OF-RECORD. THE SEAL DOES NOT IMPLY RESPONSIBILITY FOR INFORMATION PREPARED BY OTHERS NOR FOR ANY INFORMATION NOT SHOWN ON THIS DRAWING AND SUCH RESPONSIBILITY IS SPECIFICALLY DISCLAIMED. ON PHASED PROJECTS, DRAWINGS THAT ARE ISSUED BUT NOT SEALED SHALL BE CONSIDERED TO BE PRELIMINARY IN NATURE AND ARE ISSUED FOR INFORMATION ONLY.

Mon 02/09/2026 09:35:17 AM

1
2
3
4
5
6
7
8
9
120'-10 1/4"
61'-3 3/4"
59'-6 1/2"
10'-6 7/8"
10'-4 3/8"
15'-0"
15'-0"
10'-4 1/2"
26'-9 1/2"
6'-3"
26'-6"
A
B
C
D
E
F
G
43'-9 7/8"
21'-0 1/2"
22'-9 3/8"
109'-10 1/8"
25'-1"
66'-0 1/4"
6'-2 3/4"
4'-9 1/8"
29'-11 3/8"
HDR
16" WOOD FLOOR TRUSS@24"OC
(3)16" LVL
2x12@16"OC
(3)2x10
2x10@24"OC
2x10@12"OC
T/SHEATHING
STAIRS
STAIR B
ELEVATOR
SWX 6'-6"
SWX 7'-6"
SWX 10'-10"
SWX 10'-9"
SWX 10'-5"
SWX 10'-4"
SWX 10'-2"
SWX 10'-0"
SWX 9'-6"
SWX 5'-3"
SWX 14'-2"
SWX 33'-11"
SWX 22'-3"
SWX 17'-0"
SWX 16'-7"
SWX 11'-7"
SWX 9'-3"
SWX 8'-3"
SWX 7'-7"
SWX 6'-0"
SWX 5'-4"
SWX 15'-6"
SWX 12'-1"
SWX 10'-1"
SWX 9'-4"
SWX 7'-10"
SWX 5'-0"
SWX 4'-2"
25'-10 13/32"
25'-10 9/16"
17'-3 1/32"
6'-31/32"
6'-5 27/32"
9'-1 3/8"
25'-6 23/32"
20'-11 27/32"
20'-11/16"
9'-9 15/16"
9'-10 1/4"
131'-5 5/8"
28'-11 1/32"
30'-5 9/32"
30'-5 27/32"
30'-5 31/32"
30'-5 15/32"
30'-5 23/32"
30'-5 7/32"
13'-2 21/32"
13'-2 7/32"
10'-2 7/32"
10'-3 25/32"
10'-2 15/32"
10'-3 7/32"
79'-3 23/32"
79'-2 31/32"
79'-2 23/32"
79'-2 15/32"
79'-2 7

LOAD KEY LEGEND

LOAD AREA	PATTERN	SELF WEIGHT (psf) (NOTES 1&2)	SUPERIMPOSED LOADS: DEAD LOAD (psf) (NOTE 3)	LIVE LOAD (psf) (NOTES 5&7)	SNOW LOAD (psf) (NOTES 6&7)	VERT WIND LOAD (psf) (NOTES 8&10)	HYDROSTATIC UPLIFT LOAD (NOTES 9&10)	LIVE LOAD REDUCTION	DESCRIPTION OF LOAD	NOTES
1		7	35	40	--	--	--	YES	TYPICAL RESIDENTIAL FLOOR	--
2		6	40	60	--	--	--	YES	TYPICAL BALCONY	SEE NOTES 1,2,4,5
3		6	20	20	73 + Drift	--	--	YES	TYPICAL ROOF	
4		5	35	100	--	--	--	NO	STAIRS/COMMONS	
5		5	30	40	--	--	--	YES	LOFT SPACE	
6										

Wall Summary

Load #	Description of Load	Self Weight (psf)	Superimposed Dead Load (psf)
1	Interior Wall	4	6
2	Exterior Wall (Metal Siding)	3	7
3	Elevator Core	51	0
4	Exterior Wall (Stucco)	5	12
5	Exterior Wall	0	0

Level 4 - Areas

Description	Quantity	Unit
Load #1	9,593.79700	sf
Load #2	161.65810	sf
Load #4	713.69250	sf

1 S0104 LEVEL 4 FRAMING PLAN

1/8" = 1'-0"

N

WOOD FLOOR FRAMING PLAN NOTES:

1. *TYPICAL FLOOR IS ARCHITECTURAL FINISHES OVER 1 1/2" MAX GYPCRETE TOPPING SLAB OVER 3/4" T&G OSB/PLYWOOD FLOOR SHEATHING OVER PREMANUFACTURED WOOD FLOOR TRUSSES. TYPICAL FLOOR SHEATHING ATTACHMENT IS GLUE AND NAIL WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD, UNO.*
2. *TYPICAL EXTERIOR WALL IS 1/2" OSB/PLYWOOD WALL SHEATHING ON 2x6 DFL No2@SPACING SHOWN IN BEARING WALL SCHEDULE, UNO. ATTACH WALL SHEATHING WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD UNLESS DESIGNATED AS A SHEAR WALL. RE: SHEAR WALL SCHEDULE FOR SHEAR WALL NAILING.*
3. *TYPICAL INTERIOR STRUCTURAL WALL IS 2x6 DFL No2 @SPACING SHOWN IN BEARING WALL SCHEDULE, UNO.*
4. *TYPICAL COLUMN IS (3)2x6 DFL No2, UNO.*
5. *ALL LVL MATERIAL IS 1 3/4" THICK, UNO.*
6. *RE: "TYPICAL WOOD HEADER TABLE" FOR HEADER SIZING AND NUMBER OF TRIMMER STUDS WHERE INDICATED "HDR" ON PLAN.*
7. *WHEN NOT SPECIFIED AS "HDR", MINIMUM NUMBER OF KING STUDS EACH SIDE OF OPENING IS EQUAL TO HALF THE NUMBER OF STUDS INTERRUPTED BY HEADER PLUS ONE, (2) MIN. RE: "TYPICAL WOOD HEADER TABLE" FOR ATTACHMENT OF HEADER TO KING STUDS.*
8. *RE: ARCH FOR WINDOW AND DOOR LOCATIONS.*
9. *COORDINATE FRAMING LAYOUT WITH LIGHTING LOCATIONS, RE: ARCH.*
10. *RE: SHEET S0001 FOR GENERAL NOTES AND LEGENDS.*
11. *RE: SHEET S0011 FOR LOAD KEYS.*
12. *RE: SHEET S0021 FOR TYPICAL DETAILS.*
13. *RE: SHEET S0501 FOR SHEAR WALL, HOLDOWN, HANGER, AND BASE PLATE SCHEDULES.*

THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS ON THE PROJECT TO CLEARLY DEFINE ALL OF THE REQUIREMENTS FOR THE CONSTRUCTION. WHERE CONFLICTS OCCUR CONTACT ARCHITECT FOR CLARIFICATION.

THE STRUCTURAL ENGINEERS SEAL ON THIS DRAWING INDICATES THAT THE INFORMATION SHOWN AND THE CALCULATIONS PERTAINING TO THAT INFORMATION HAVE BEEN PREPARED BY QUALIFIED PEOPLE UNDER THE DIRECTION OF THE ENGINEER-OF-RECORD. THE SEAL DOES NOT IMPLY RESPONSIBILITY FOR INFORMATION PREPARED BY OTHERS NOR FOR ANY INFORMATION NOT SHOWN ON THIS DRAWING AND SUCH RESPONSIBILITY IS SPECIFICALLY DISCLAIMED. ON PHASED PROJECTS, DRAWINGS THAT ARE ISSUED BUT NOT SEALED SHALL BE CONSIDERED TO BE PRELIMINARY IN NATURE AND ARE ISSUED FOR INFORMATION ONLY.

Mon 02/09/2026 09:35:14 AM

APPROVAL STAMPS:

No.	Date	Description

SUBMISSIONS & REVISIONS

OWNER

MAY REIGLER PROPERTIES
2201 Wisconsin Ave NW Suite 200
Washington, DC 20007
www.mayriegler.com

ARCHITECT

KASA

KEVIN & ASAKO SPERRY ARCHITECTURE
3318 N. Columbus Street
Arlington, VA 22207
T.312.636.3248 / 312.636.4252
www.kasa-arch.com

GENERAL CONTRACTOR

DENEUVE CONSTRUCTION
2344 Spruce Street
Boulder, CO 80302
T: 303.444.6633

CIVIL ENGINEER

LANDMARK ENGINEERING
141 9th Street, PO Box 774943
Steamboat Springs, CO 80477
T.970.871.9494

LANDSCAPE ARCHITECT

STRUCTURAL ENGINEER

KL&A ENGINEERS & BUILDERS
1717 Washington Ave.
Golden, CO 80401
T. 303.384.9910

© 2022 KL&A, INC

M.E.P. & F.P. ENGINEERS

BOULDER ENGINEERING
1717 15th Street
Boulder, CO 80302
T. 303.444.6038

INTERIOR DESIGNER:

JOHNSON NATHAN STROHE
1600 Wynkoop St., Suite 100
Denver, CO 80202
T.303.892.7062

PROJECT LOCATION

STEAMBOAT BASECAMP II

STEAMBOAT BASECAMP, LOT 2
STEAMBOAT SPRINGS, CO 80487

DRAWING TITLE

LEVEL 4 FRAMING PLAN

SEAL	DATE: 11/25/25
	DRAWN BY: Author
	CHECKED BY: Checker
	PROJECT NO:

DRAWING NO:

S0104

COPYRIGHT 2019

LOAD KEY LEGEND

LOAD AREA	PATTERN	SELF WEIGHT (psf) (NOTES 1&2)	SUPERIMPOSED LOADS: DEAD LOAD (psf) (NOTE 3)	LIVE LOAD (psf) (NOTES 5&7)	SNOW LOAD (psf) (NOTES 6&7)	VERT WIND LOAD (psf) (NOTES 8&10)	HYDROSTATIC UPLIFT LOAD (NOTES 9&10)	LIVE LOAD REDUCTION	DESCRIPTION OF LOAD	NOTES
1		7	35	40	--	--	--	YES	TYPICAL RESIDENTIAL FLOOR	--
2		6	40	60	--	--	--	YES	TYPICAL BALCONY	SEE NOTES 1,2,4,5
3		6	20	20	73 + Drift	--	--	YES	TYPICAL ROOF	
4		5	35	100	--	--	--	NO	STAIRS/COMMONS	
5		5	30	40	--	--	--	YES	LOFT SPACE	
6										

Wall Summary

Load #	Description of Load	Self Weight (psf)	Superimposed Dead Load (psf)
1	Interior Wall	4	6
2	Exterior Wall (Metal Siding)	3	7
3	Elevator Core	51	0
4	Exterior Wall (Stucco)	5	12
5	Exterior Wall	0	0

Level 4 - Walls Below

Description	Quantity	Unit
Wall-1_2x6-Int-Brng	1,033.1380000	ft
Wall-2_2x6-Ext-Brg-Mtl-Sdng	538.0131000	ft
Wall-3_CMU-8"	34.8807000	ft

1 S0104 LEVEL 4 FRAMING PLAN

1/8" = 1'-0"

N

WOOD FLOOR FRAMING PLAN NOTES:

1. TYPICAL FLOOR IS ARCHITECTURAL FINISHES OVER 1 1/2" MAX GYPCRETE TOPPING SLAB OVER 3/4" T&G OSB/PLYWOOD FLOOR SHEATHING OVER PREMANUFACTURED WOOD FLOOR TRUSSES. TYPICAL FLOOR SHEATHING ATTACHMENT IS GLUE AND NAIL WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD, UNO.
2. TYPICAL EXTERIOR WALL IS 1/2" OSB/PLYWOOD WALL SHEATHING ON 2x6 DFL No2@SPACING SHOWN IN BEARING WALL SCHEDULE, UNO. ATTACH WALL SHEATHING WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD UNLESS DESIGNATED AS A SHEAR WALL. RE: SHEAR WALL SCHEDULE FOR SHEAR WALL NAILING.
3. TYPICAL INTERIOR STRUCTURAL WALL IS 2x6 DFL No2 @SPACING SHOWN IN BEARING WALL SCHEDULE, UNO.
4. TYPICAL COLUMN IS (3)2x6 DFL No2, UNO.
5. ALL LVL MATERIAL IS 1 3/4" THICK, UNO.
6. RE: "TYPICAL WOOD HEADER TABLE" FOR HEADER SIZING AND NUMBER OF TRIMMER STUDS WHERE INDICATED "HDR" ON PLAN.
7. WHEN NOT SPECIFIED AS "HDR", MINIMUM NUMBER OF KING STUDS EACH SIDE OF OPENING IS EQUAL TO HALF THE NUMBER OF STUDS INTERRUPTED BY HEADER PLUS ONE, (2) MIN. RE: "TYPICAL WOOD HEADER TABLE" FOR ATTACHMENT OF HEADER TO KING STUDS.
8. RE: ARCH FOR WINDOW AND DOOR LOCATIONS.
9. COORDINATE FRAMING LAYOUT WITH LIGHTING LOCATIONS, RE: ARCH.
10. RE: SHEET S0001 FOR GENERAL NOTES AND LEGENDS.
11. RE: SHEET S0011 FOR LOAD KEYS.
12. RE: SHEET S0021 FOR TYPICAL DETAILS.
13. RE: SHEET S0501 FOR SHEAR WALL, HOLDOWN, HANGER, AND BASE PLATE SCHEDULES.

THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS ON THE PROJECT TO CLEARLY DEFINE ALL OF THE REQUIREMENTS FOR THE CONSTRUCTION. WHERE CONFLICTS OCCUR CONTACT ARCHITECT FOR CLARIFICATION.

THE STRUCTURAL ENGINEERS SEAL ON THIS DRAWING INDICATES THAT THE INFORMATION SHOWN AND THE CALCULATIONS PERTAINING TO THAT INFORMATION HAVE BEEN PREPARED BY QUALIFIED PEOPLE UNDER THE DIRECTION OF THE ENGINEER-OF-RECORD. THE SEAL DOES NOT IMPLY RESPONSIBILITY FOR INFORMATION PREPARED BY OTHERS NOR FOR ANY INFORMATION NOT SHOWN ON THIS DRAWING AND SUCH RESPONSIBILITY IS SPECIFICALLY DISCLAIMED. ON PHASED PROJECTS, DRAWINGS THAT ARE ISSUED BUT NOT SEALED SHALL BE CONSIDERED TO BE PRELIMINARY IN NATURE AND ARE ISSUED FOR INFORMATION ONLY.

Mon 02/09/2026 09:35:14 AM

APPROVAL STAMPS:

No.	Date	Description

SUBMISSIONS & REVISIONS

OWNER

MAY REIGLER PROPERTIES
2201 Wisconsin Ave NW Suite 200
Washington, DC 20007
www.mayriegler.com

ARCHITECT

K A S A

KEVIN & ASAKO SPERRY ARCHITECTURE
3318 N. Columbus Street
Arlington, VA 22207
T.312.636.3248 / 312.636.4252
www.kasa-arch.com

GENERAL CONTRACTOR

DENEUVE CONSTRUCTION
2344 Spruce Street
Boulder, CO 80302
T: 303.444.6633

CIVIL ENGINEER

LANDMARK ENGINEERING
141 9th Street, PO Box 774943
Steamboat Springs, CO 80477
T.970.871.9494

LANDSCAPE ARCHITECT

STRUCTURAL ENGINEER

KL&A ENGINEERS & BUILDERS
1717 Washington Ave.
Golden, CO 80401
T. 303.384.9910

© 2022 KL&A, INC

M.E.P. & F.P. ENGINEERS

BOULDER ENGINEERING
1717 15th Street
Boulder, CO 80302
T. 303.444.6038

INTERIOR DESIGNER:

JOHNSON NATHAN STROHE
1600 Wynkoop St., Suite 100
Denver, CO 80202
T.303.892.7062

PROJECT LOCATION

STEAMBOAT BASECAMP II

STEAMBOAT BASECAMP, LOT 2
STEAMBOAT SPRINGS, CO 80487

DRAWING TITLE

LEVEL 4 FRAMING PLAN

SEAL

DATE: 11/25/25
DRAWN BY: Author
CHECKED BY: Checker
PROJECT NO:

DRAWING NO:

S0104

COPYRIGHT 2019

LOAD KEY LEGEND

LOAD AREA	PATTERN	SELF WEIGHT (psf) (NOTES 1&2)	SUPERIMPOSED LOADS: DEAD LOAD (psf) (NOTE 3)	LIVE LOAD (psf) (NOTES 5&7)	SNOW LOAD (psf) (NOTES 6&7)	VERT WIND LOAD (psf) (NOTES 8&10)	HYDROSTATIC UPLIFT LOAD (NOTES 9&10)	LIVE LOAD REDUCTION	DESCRIPTION OF LOAD	NOTES
1		7	35	40	--	--	--	YES	TYPICAL RESIDENTIAL FLOOR	--
2		6	40	60	--	--	--	YES	TYPICAL BALCONY	SEE NOTES 1,2,4,5
3		6	20	20	73 + Drift	--	--	YES	TYPICAL ROOF	
4		5	35	100	--	--	--	NO	STAIRS/COMMONS	
5		5	30	40	--	--	--	YES	LOFT SPACE	
6										

Wall Summary

Load #	Description of Load	Self Weight (psf)	Superimposed Dead Load (psf)
1	Interior Wall	4	6
2	Exterior Wall (Metal Siding)	3	7
3	Elevator Core	51	0
4	Exterior Wall (Stucco)	5	12
5	Exterior Wall	0	0

Level 3 - Walls Above

Description	Quantity	Unit
Wall-1_2x6-Int-Brng	1,033.1380000	ft
Wall-2_2x6-Ext-Brg-Mtl-Sdng	538.0131000	ft
Wall-3_CMU-8"	34.8807000	ft

1 S0103 LEVEL 3 FRAMING PLAN

1/8" = 1'-0"

N

WOOD FLOOR FRAMING PLAN NOTES:

1. *TYPICAL FLOOR IS ARCHITECTURAL FINISHES OVER 1 1/2" MAX GYPCRETE TOPPING SLAB OVER 3/4" T&G OSB/PLYWOOD FLOOR SHEATHING OVER PREMANUFACTURED WOOD FLOOR TRUSSES. TYPICAL FLOOR SHEATHING ATTACHMENT IS GLUE AND NAIL WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD, UNO.*
2. *TYPICAL EXTERIOR WALL IS 1/2" OSB/PLYWOOD WALL SHEATHING ON 2x6 DFL No2@SPACING SHOWN IN BEARING WALL SCHEDULE, UNO. ATTACH WALL SHEATHING WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD UNLESS DESIGNATED AS A SHEAR WALL. RE: SHEAR WALL SCHEDULE FOR SHEAR WALL NAILING.*
3. *TYPICAL INTERIOR STRUCTURAL WALL IS 2x6 DFL No2 @SPACING SHOWN IN BEARING WALL SCHEDULE, UNO.*
4. *TYPICAL COLUMN IS (3)2x6 DFL No2, UNO.*
5. *ALL LVL MATERIAL IS 1 3/4" THICK, UNO.*
6. *RE: "TYPICAL WOOD HEADER TABLE" FOR HEADER SIZING AND NUMBER OF TRIMMER STUDS WHERE INDICATED "HDR" ON PLAN.*
7. *WHEN NOT SPECIFIED AS "HDR", MINIMUM NUMBER OF KING STUDS EACH SIDE OF OPENING IS EQUAL TO HALF THE NUMBER OF STUDS INTERRUPTED BY HEADER PLUS ONE, (2) MIN. RE: "TYPICAL WOOD HEADER TABLE" FOR ATTACHMENT OF HEADER TO KING STUDS.*
8. *RE: ARCH FOR WINDOW AND DOOR LOCATIONS.*
9. *COORDINATE FRAMING LAYOUT WITH LIGHTING LOCATIONS, RE: ARCH.*
10. *RE: SHEET S0001 FOR GENERAL NOTES AND LEGENDS.*
11. *RE: SHEET S0011 FOR LOAD KEYS.*
12. *RE: SHEET S0021 FOR TYPICAL DETAILS.*
13. *RE: SHEET S0501 FOR SHEAR WALL, HOLDOWN, HANGER, AND BASE PLATE SCHEDULES.*

THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS ON THE PROJECT TO CLEARLY DEFINE ALL OF THE REQUIREMENTS FOR THE CONSTRUCTION. WHERE CONFLICTS OCCUR CONTACT ARCHITECT FOR CLARIFICATION.

THE STRUCTURAL ENGINEERS SEAL ON THIS DRAWING INDICATES THAT THE INFORMATION SHOWN AND THE CALCULATIONS PERTAINING TO THAT INFORMATION HAVE BEEN PREPARED BY QUALIFIED PEOPLE UNDER THE DIRECTION OF THE ENGINEER-OF-RECORD. THE SEAL DOES NOT IMPLY RESPONSIBILITY FOR INFORMATION PREPARED BY OTHERS NOR FOR ANY INFORMATION NOT SHOWN ON THIS DRAWING AND SUCH RESPONSIBILITY IS SPECIFICALLY DISCLAIMED. ON PHASED PROJECTS, DRAWINGS THAT ARE ISSUED BUT NOT SEALED SHALL BE CONSIDERED TO BE PRELIMINARY IN NATURE AND ARE ISSUED FOR INFORMATION ONLY.

Mon 02/09/2026 09:35:11 AM

APPROVAL STAMPS:

No.	Date	Description

SUBMISSIONS & REVISIONS

OWNER

MAY REIGLER PROPERTIES
2201 Wisconsin Ave NW Suite 200
Washington, DC 20007
www.mayriegler.com

ARCHITECT

KEVIN & ASAKO SPERRY ARCHITECTURE
3318 N. Columbus Street
Arlington, VA 22207
T.312.636.3248 / 312.636.4252
www.kasa-arch.com

GENERAL CONTRACTOR

DENEUVE CONSTRUCTION
2344 Spruce Street
Boulder, CO 80302
T: 303.444.6633

CIVIL ENGINEER

LANDMARK ENGINEERING
141 9th Street, PO Box 774943
Steamboat Springs, CO 80477
T.970.871.9494

LANDSCAPE ARCHITECT

STRUCTURAL ENGINEER

KL&A ENGINEERS & BUILDERS
1717 Washington Ave.
Golden, CO 80401
T. 303.384.9910

© 2022 KL&A, INC

M.E.P. & F.P. ENGINEERS

BOULDER ENGINEERING
1717 15th Street
Boulder, CO 80302
T. 303.444.6038

INTERIOR DESIGNER:

JOHNSON NATHAN STROHE
1600 Wynkoop St., Suite 100
Denver, CO 80202
T.303.892.7062

PROJECT LOCATION

STEAMBOAT BASECAMP II

STEAMBOAT BASECAMP, LOT 2
STEAMBOAT SPRINGS, CO 80487

DRAWING TITLE

LEVEL 3 FRAMING PLAN

SEAL

DATE: 11/25/25
DRAWN BY: Author
CHECKED BY: Checker
PROJECT NO:

DRAWING NO:

S0103

COPYRIGHT 2019

LOAD KEY LEGEND

LOAD AREA	PATTERN	SELF WEIGHT (psf) (NOTES 1&2)	SUPERIMPOSED LOADS: DEAD LOAD (psf) (NOTE 3)	LIVE LOAD (psf) (NOTES 5&7)	SNOW LOAD (psf) (NOTES 6&7)	VERT WIND LOAD (psf) (NOTES 8&10)	HYDROSTATIC UPLIFT LOAD (NOTES 9&10)	LIVE LOAD REDUCTION	DESCRIPTION OF LOAD	NOTES
1		7	35	40	--	--	--	YES	TYPICAL RESIDENTIAL FLOOR	--
2		6	40	60	--	--	--	YES	TYPICAL BALCONY	SEE NOTES 1,2,4,5
3		6	20	20	73 + Drift	--	--	YES	TYPICAL ROOF	
4		5	35	100	--	--	--	NO	STAIRS/COMMONS	
5		5	30	40	--	--	--	YES	LOFT SPACE	
6										

Wall Summary

Load #	Description of Load	Self Weight (psf)	Superimposed Dead Load (psf)
1	Interior Wall	4	6
2	Exterior Wall (Metal Siding)	3	7
3	Elevator Core	51	0
4	Exterior Wall (Stucco)	5	12
5	Exterior Wall	0	0

Level 3 - Areas

Description	Quantity	Unit
Load #1	9,593.79700	sf
Load #2	161.65810	sf
Load #4	713.69240	sf

1 S0103 LEVEL 3 FRAMING PLAN

1/8" = 1'-0"

N

WOOD FLOOR FRAMING PLAN NOTES:

1. *TYPICAL FLOOR IS ARCHITECTURAL FINISHES OVER 1 1/2" MAX GYPCRETE TOPPING SLAB OVER 3/4" T&G OSB/PLYWOOD FLOOR SHEATHING OVER PREMANUFACTURED WOOD FLOOR TRUSSES. TYPICAL FLOOR SHEATHING ATTACHMENT IS GLUE AND NAIL WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD, UNO.*
2. *TYPICAL EXTERIOR WALL IS 1/2" OSB/PLYWOOD WALL SHEATHING ON 2x6 DFL No2@SPACING SHOWN IN BEARING WALL SCHEDULE, UNO. ATTACH WALL SHEATHING WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD UNLESS DESIGNATED AS A SHEAR WALL. RE: SHEAR WALL SCHEDULE FOR SHEAR WALL NAILING.*
3. *TYPICAL INTERIOR STRUCTURAL WALL IS 2x6 DFL No2 @SPACING SHOWN IN BEARING WALL SCHEDULE, UNO.*
4. *TYPICAL COLUMN IS (3)2x6 DFL No2, UNO.*
5. *ALL LVL MATERIAL IS 1 3/4" THICK, UNO.*
6. *RE: "TYPICAL WOOD HEADER TABLE" FOR HEADER SIZING AND NUMBER OF TRIMMER STUDS WHERE INDICATED "HDR" ON PLAN.*
7. *WHEN NOT SPECIFIED AS "HDR", MINIMUM NUMBER OF KING STUDS EACH SIDE OF OPENING IS EQUAL TO HALF THE NUMBER OF STUDS INTERRUPTED BY HEADER PLUS ONE, (2) MIN. RE: "TYPICAL WOOD HEADER TABLE" FOR ATTACHMENT OF HEADER TO KING STUDS.*
8. *RE: ARCH FOR WINDOW AND DOOR LOCATIONS.*
9. *COORDINATE FRAMING LAYOUT WITH LIGHTING LOCATIONS, RE: ARCH.*
10. *RE: SHEET S0001 FOR GENERAL NOTES AND LEGENDS.*
11. *RE: SHEET S0011 FOR LOAD KEYS.*
12. *RE: SHEET S0021 FOR TYPICAL DETAILS.*
13. *RE: SHEET S0501 FOR SHEAR WALL, HOLDOWN, HANGER, AND BASE PLATE SCHEDULES.*

THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS ON THE PROJECT TO CLEARLY DEFINE ALL OF THE REQUIREMENTS FOR THE CONSTRUCTION. WHERE CONFLICTS OCCUR CONTACT ARCHITECT FOR CLARIFICATION.

THE STRUCTURAL ENGINEERS SEAL ON THIS DRAWING INDICATES THAT THE INFORMATION SHOWN AND THE CALCULATIONS PERTAINING TO THAT INFORMATION HAVE BEEN PREPARED BY QUALIFIED PEOPLE UNDER THE DIRECTION OF THE ENGINEER-OF-RECORD. THE SEAL DOES NOT IMPLY RESPONSIBILITY FOR INFORMATION NOT SHOWN ON THIS DRAWING AND SUCH RESPONSIBILITY IS SPECIFICALLY DISCLAIMED. ON PHASED PROJECTS, DRAWINGS THAT ARE ISSUED BUT NOT SEALED SHALL BE CONSIDERED TO BE PRELIMINARY IN NATURE AND ARE ISSUED FOR INFORMATION ONLY.

Mon 02/09/2026 09:35:11 AM

APPROVAL STAMPS:

No.	Date	Description

SUBMISSIONS & REVISIONS

OWNER

MAY REIGLER PROPERTIES
2201 Wisconsin Ave NW Suite 200
Washington, DC 20007
www.mayriegler.com

ARCHITECT

KEVIN & ASAKO SPERRY ARCHITECTURE
3318 N. Columbus Street
Arlington, VA 22207
T.312.636.3248 / 312.636.4252
www.kasa-arch.com

GENERAL CONTRACTOR

DENEUVE CONSTRUCTION
2344 Spruce Street
Boulder, CO 80302
T: 303.444.6633

CIVIL ENGINEER

LANDMARK ENGINEERING
141 9th Street, PO Box 774943
Steamboat Springs, CO 80477
T.970.871.9494

LANDSCAPE ARCHITECT

STRUCTURAL ENGINEER

KL&A ENGINEERS & BUILDERS
1717 Washington Ave.
Golden, CO 80401
T. 303.384.9910

© 2022 KL&A, INC

M.E.P. & F.P. ENGINEERS

BOULDER ENGINEERING
1717 15th Street
Boulder, CO 80302
T. 303.444.6038

INTERIOR DESIGNER:

JOHNSON NATHAN STROHE
1600 Wynkoop St., Suite 100
Denver, CO 80202
T.303.892.7062

PROJECT LOCATION

STEAMBOAT BASECAMP II

STEAMBOAT BASECAMP, LOT 2
STEAMBOAT SPRINGS, CO 80487

DRAWING TITLE

LEVEL 3 FRAMING PLAN

SEAL	DATE: 11/25/25
	DRAWN BY: Author
	CHECKED BY: Checker
	PROJECT NO:

DRAWING NO:

S0103

COPYRIGHT 2019

LOAD KEY LEGEND

LOAD AREA	PATTERN	SELF WEIGHT (psf) (NOTES 1&2)	SUPERIMPOSED LOADS: DEAD LOAD (psf) (NOTE 3)	LIVE LOAD (psf) (NOTES 5&7)	SNOW LOAD (psf) (NOTES 6&7)	VERT WIND LOAD (psf) (NOTES 8&10)	HYDROSTATIC UPLIFT LOAD (NOTES 9&10)	LIVE LOAD REDUCTION	DESCRIPTION OF LOAD	NOTES
1		7	35	40	--	--	--	YES	TYPICAL RESIDENTIAL FLOOR	--
2		6	40	60	--	--	--	YES	TYPICAL BALCONY	SEE NOTES 1,2,4,5
3		6	20	20	73 + Drift	--	--	YES	TYPICAL ROOF	
4		5	35	100	--	--	--	NO	STAIRS/COMMONS	
5		5	30	40	--	--	--	YES	LOFT SPACE	
6										

Wall Summary

Load #	Description of Load	Self Weight (psf)	Superimposed Dead Load (psf)
1	Interior Wall	4	6
2	Exterior Wall (Metal Siding)	3	7
3	Elevator Core	51	0
4	Exterior Wall (Stucco)	5	12
5	Exterior Wall	0	0

Level 3 - Walls Below

Description	Quantity	Unit
Wall-1_2x6-Int-Brng	1,033.1380000	ft
Wall-2_2x6-Ext-Brg-Mtl-Sdng	496.0398000	ft
Wall-3_CMU-8"	34.8807000	ft

1 S0103 LEVEL 3 FRAMING PLAN

1/8" = 1'-0"

N

WOOD FLOOR FRAMING PLAN NOTES:

1. *TYPICAL FLOOR IS ARCHITECTURAL FINISHES OVER 1 1/2" MAX GYPCRETE TOPPING SLAB OVER 3/4" T&G OSB/PLYWOOD FLOOR SHEATHING OVER PREMANUFACTURED WOOD FLOOR TRUSSES. TYPICAL FLOOR SHEATHING ATTACHMENT IS GLUE AND NAIL WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD, UNO.*
2. *TYPICAL EXTERIOR WALL IS 1/2" OSB/PLYWOOD WALL SHEATHING ON 2x6 DFL No2@SPACING SHOWN IN BEARING WALL SCHEDULE, UNO. ATTACH WALL SHEATHING WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD UNLESS DESIGNATED AS A SHEAR WALL. RE: SHEAR WALL SCHEDULE FOR SHEAR WALL NAILING.*
3. *TYPICAL INTERIOR STRUCTURAL WALL IS 2x6 DFL No2 @SPACING SHOWN IN BEARING WALL SCHEDULE, UNO.*
4. *TYPICAL COLUMN IS (3)2x6 DFL No2, UNO.*
5. *ALL LVL MATERIAL IS 1 3/4" THICK, UNO.*
6. *RE: "TYPICAL WOOD HEADER TABLE" FOR HEADER SIZING AND NUMBER OF TRIMMER STUDS WHERE INDICATED "HDR" ON PLAN.*
7. *WHEN NOT SPECIFIED AS "HDR", MINIMUM NUMBER OF KING STUDS EACH SIDE OF OPENING IS EQUAL TO HALF THE NUMBER OF STUDS INTERRUPTED BY HEADER PLUS ONE, (2) MIN. RE: "TYPICAL WOOD HEADER TABLE" FOR ATTACHMENT OF HEADER TO KING STUDS.*
8. *RE: ARCH FOR WINDOW AND DOOR LOCATIONS.*
9. *COORDINATE FRAMING LAYOUT WITH LIGHTING LOCATIONS, RE: ARCH.*
10. *RE: SHEET S0001 FOR GENERAL NOTES AND LEGENDS.*
11. *RE: SHEET S0011 FOR LOAD KEYS.*
12. *RE: SHEET S0021 FOR TYPICAL DETAILS.*
13. *RE: SHEET S0501 FOR SHEAR WALL, HOLDOWN, HANGER, AND BASE PLATE SCHEDULES.*

APPROVAL STAMPS:

No.	Date	Description

SUBMISSIONS & REVISIONS

OWNER

MAY REIGLER PROPERTIES
2201 Wisconsin Ave NW Suite 200
Washington, DC 20007
www.mayriegler.com

ARCHITECT

KEVIN & ASAKO SPERRY ARCHITECTURE
3318 N. Columbus Street
Arlington, VA 22207
T.312.636.3248 / 312.636.4252
www.kasa-arch.com

GENERAL CONTRACTOR

DENEUVE CONSTRUCTION
2344 Spruce Street
Boulder, CO 80302
T: 303.444.6633

CIVIL ENGINEER

LANDMARK ENGINEERING
141 9th Street, PO Box 774943
Steamboat Springs, CO 80477
T.970.871.9494

LANDSCAPE ARCHITECT

STRUCTURAL ENGINEER

KL&A ENGINEERS & BUILDERS
1717 Washington Ave.
Golden, CO 80401
T. 303.384.9910

© 2022 KL&A, INC

M.E.P. & F.P. ENGINEERS

BOULDER ENGINEERING
1717 15th Street
Boulder, CO 80302
T. 303.444.6038

INTERIOR DESIGNER:

JOHNSON NATHAN STROHE
1600 Wynkoop St., Suite 100
Denver, CO 80202
T.303.892.7062

PROJECT LOCATION

STEAMBOAT BASECAMP II

STEAMBOAT BASECAMP, LOT 2
STEAMBOAT SPRINGS, CO 80487

DRAWING TITLE

LEVEL 3 FRAMING PLAN

SEAL

DATE: 11/25/25
DRAWN BY: Author
CHECKED BY: Checker
PROJECT NO:

DRAWING NO:

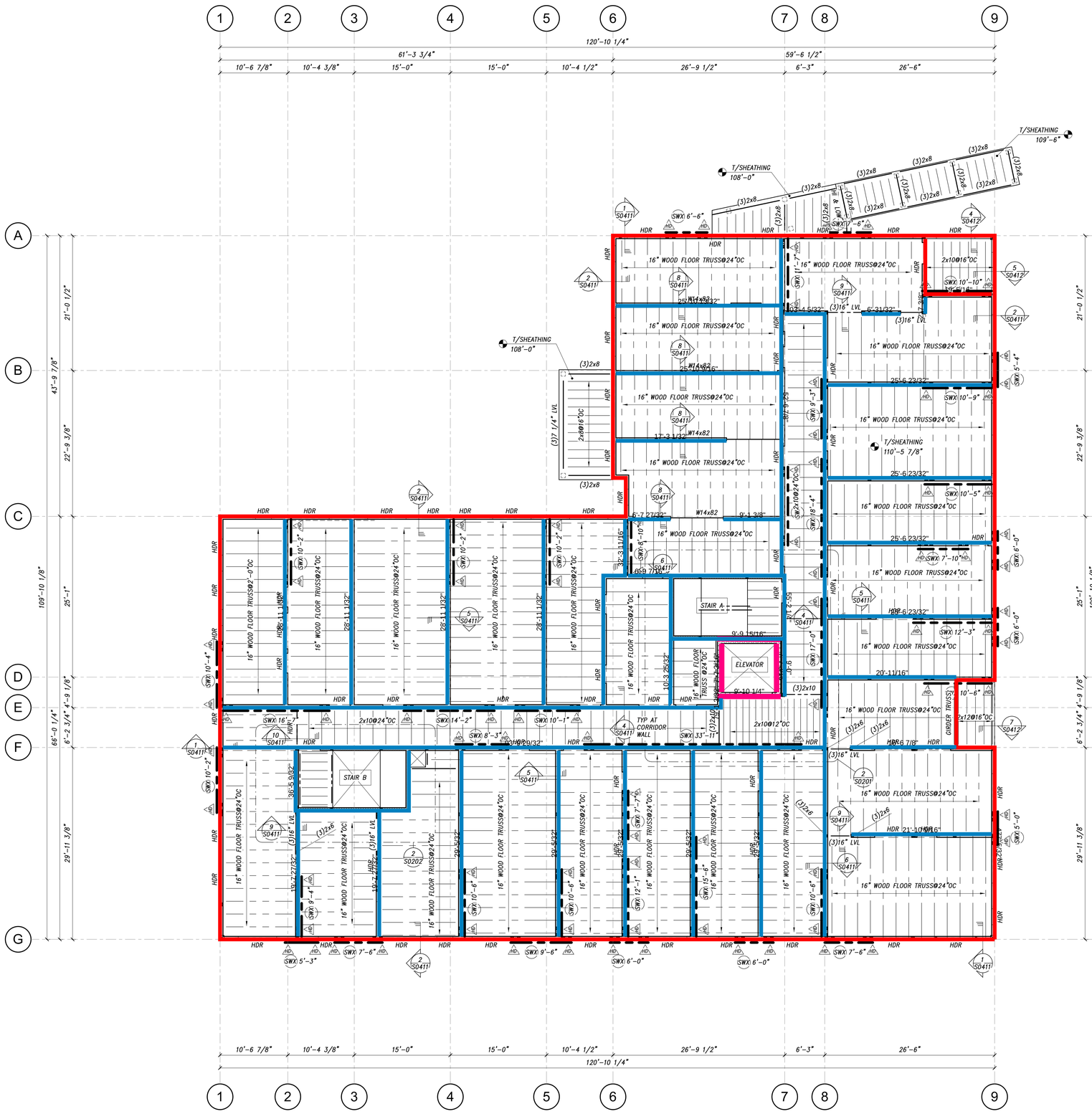
S0103

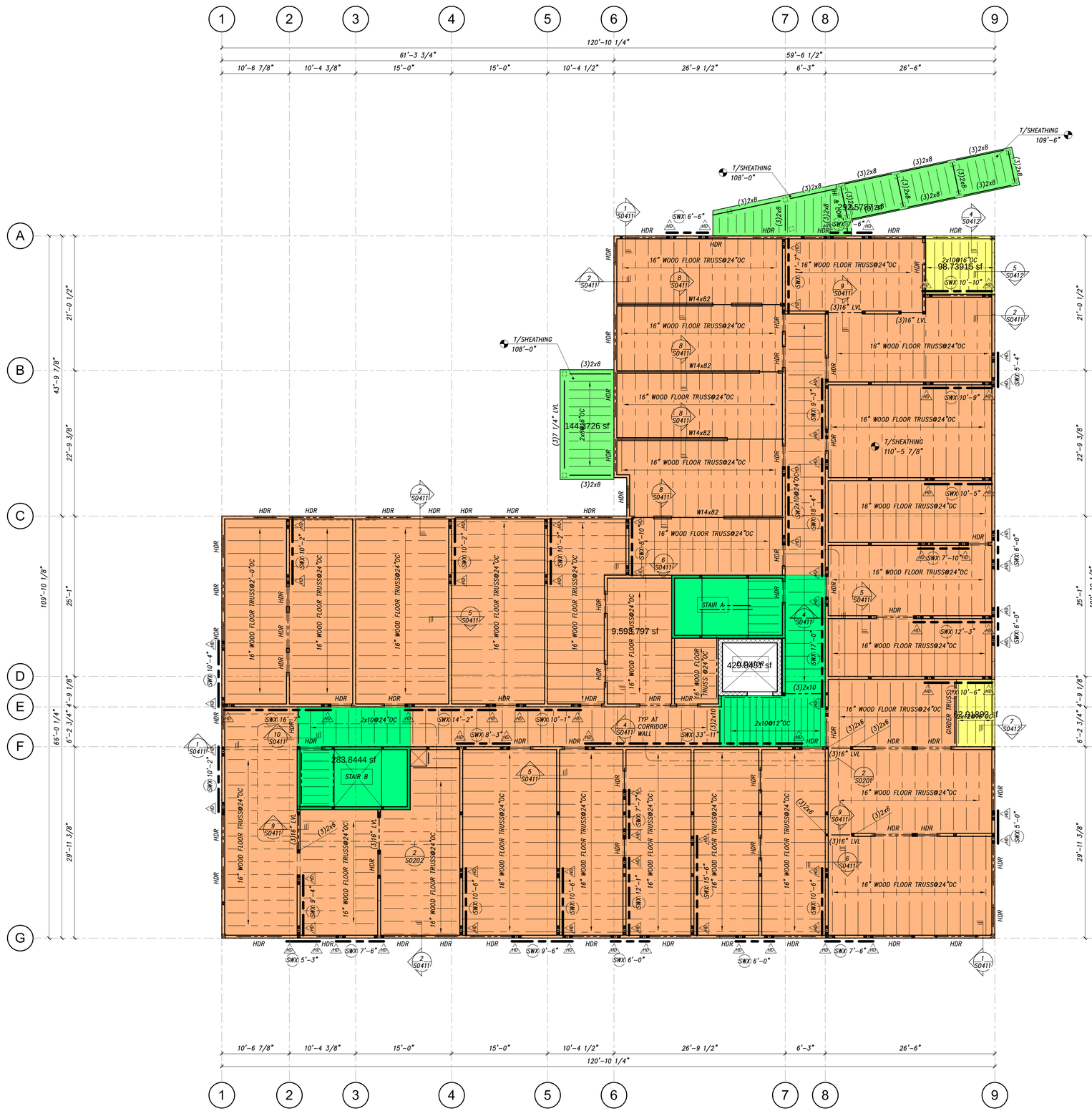
COPYRIGHT 2019

THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS ON THE PROJECT TO CLEARLY DEFINE ALL OF THE REQUIREMENTS FOR THE CONSTRUCTION. WHERE CONFLICTS OCCUR CONTACT ARCHITECT FOR CLARIFICATION.

THE STRUCTURAL ENGINEERS SEAL ON THIS DRAWING INDICATES THAT THE INFORMATION SHOWN AND THE CALCULATIONS PERTAINING TO THAT INFORMATION HAVE BEEN PREPARED BY QUALIFIED PEOPLE UNDER THE DIRECTION OF THE ENGINEER-OF-RECORD. THE SEAL DOES NOT IMPLY RESPONSIBILITY FOR INFORMATION PREPARED BY OTHERS NOR FOR ANY INFORMATION NOT SHOWN ON THIS DRAWING AND SUCH RESPONSIBILITY IS SPECIFICALLY DISCLAIMED. ON PHASED PROJECTS, DRAWINGS THAT ARE ISSUED BUT NOT SEALED SHALL BE CONSIDERED TO BE PRELIMINARY IN NATURE AND ARE ISSUED FOR INFORMATION ONLY.

Mon 02/09/2026 09:35:11 AM


1
2
3
4
5
6
7
8
9
120'-10 1/4"
61'-3 3/4"
59'-6 1/2"
10'-6 7/8"
10'-4 3/8"
15'-0"
15'-0"
10'-4 1/2"
26'-9 1/2"
6'-3"
26'-6"
A
B
C
D
E
F
G
43'-9 7/8"
21'-0 1/2"
22'-9 3/8"
109'-10 1/8"
25'-1"
66'-0 1/4"
6'-2 3/4"
4'-9 1/8"
29'-11 3/8"
T/SHEATHING
109'-6"
T/SHEATHING
108'-0"
T/SHEATHING
108'-0"
T/SHEATHING
110'-5 7/8"
(3)2x8
(3)2x10
(3)2x6
2x10@16"OC
2x12@16"OC
16" WOOD FLOOR TRUSS@24"OC
HDR
SWX 6'-6"
SWX 10'-10"
SWX 5'-4"
SWX 9'-3"
SWX 10'-9"
SWX 10'-5"
SWX 6'-0"
SWX 7'-10"
SWX 12'-3"
SWX 17'-0"
SWX 10'-6"
SWX 16'-7"
SWX 14'-2"
SWX 10'-1"
SWX 8'-3"
SWX 33'-11"
SWX 15'-6"
SWX 12'-1"
SWX 9'-6"
SWX 7'-6"
SWX 5'-3"
(3)16" LVL
W14x82
STAIR A
STAIR B
ELEVATOR
TYP AT CORRIDOR WALL
GIRDER TRUSS
HDR 6'-7 7/8"
HDR 21'-10 7/16"
HDR 20'-11/16"
HDR 6'-23/32"
HDR 6'-27/32"
HDR 9'-1 3/8"
HDR 9'-9 15/16"
HDR 9'-10 1/4"
HDR 10'-2"
HDR 10'-4"
HDR 10'-6"
HDR 10'-7"
HDR 10'-8"
HDR 11'-7"
HDR 11'-8"
HDR 12'-0"
HDR 12'-2"
HDR 12'-3"
HDR 12'-4"
HDR 12'-5"
HDR 12'-6"
HDR 12'-7"
HDR 12'-8"
HDR 12'-9"
HDR 12'-10"
HDR 13'-0"
HDR 13'-1"
HDR 13'-2"
HDR 13'-3"
HDR 13'-4"
HDR 13'-5"
HDR 13'-6"
HDR 13'-7"
HDR 13'-8"
HDR 13'-9"
HDR 13'-10"
HDR 14'-0"
HDR 14'-1"
HDR 14'-2"
HDR 14'-3"
HDR 14'-4"
HDR 14'-5"
HDR 14'-6"
HDR 14'-7"
HDR 14'-8"
HDR 14'-9"
HDR 14'-10"
HDR 15'-0"
HDR 15'-1"
HDR



LOAD KEY LEGEND

LOAD AREA	PATTERN	SELF WEIGHT (psf) (NOTES 1&2)	SUPERIMPOSED LOADS: DEAD LOAD (psf) (NOTE 3)	LIVE LOAD (psf) (NOTES 5&7)	SNOW LOAD (psf) (NOTES 6&7)	VERT WIND LOAD (psf) (NOTES 8&10)	HYDROSTATIC UPLIFT LOAD (NOTES 9&10)	LIVE LOAD REDUCTION	DESCRIPTION OF LOAD	NOTES
1		7	35	40	--	--	--	YES	TYPICAL RESIDENTIAL FLOOR	--
2		6	40	60	--	--	--	YES	TYPICAL BALCONY	SEE NOTES 1,2,4,5
3		6	20	20	73 + Drift	--	--	YES	TYPICAL ROOF	
4		5	35	100	--	--	--	NO	STAIRS/COMMONS	
5		5	30	40	--	--	--	YES	LOFT SPACE	
6										

Wall Summary

Load #	Description of Load	Self Weight (psf)	Superimposed Dead Load (psf)
1	Interior Wall	4	6
2	Exterior Wall (Metal Siding)	3	7
3	Elevator Core	51	0
4	Exterior Wall (Stucco)	5	12
5	Exterior Wall	0	0

Level 2 - Areas

Description	Quantity	Unit
Load #1	9,593.79700	sf
Load #2	161.65800	sf
Load #3	436.95170	sf
Load #4	713.69250	sf

1 S0102 LEVEL 2 FRAMING PLAN

1/8" = 1'-0"

N

WOOD FLOOR FRAMING PLAN NOTES:

1. *TYPICAL FLOOR IS ARCHITECTURAL FINISHES OVER 1 1/2" MAX GYPCRETE TOPPING SLAB OVER 3/4" T&G OSB/PLYWOOD FLOOR SHEATHING OVER PREMANUFACTURED WOOD FLOOR TRUSSES. TYPICAL FLOOR SHEATHING ATTACHMENT IS GLUE AND NAIL WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD, UNO.*
2. *TYPICAL EXTERIOR WALL IS 1/2" OSB/PLYWOOD WALL SHEATHING ON 2x6 DFL No2@SPACING SHOWN IN BEARING WALL SCHEDULE, UNO. ATTACH WALL SHEATHING WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD UNLESS DESIGNATED AS A SHEAR WALL. RE: SHEAR WALL SCHEDULE FOR SHEAR WALL NAILING.*
3. *TYPICAL INTERIOR STRUCTURAL WALL IS 2x6 DFL No2 @SPACING SHOWN IN BEARING WALL SCHEDULE, UNO.*
4. *TYPICAL COLUMN IS (3)2x6 DFL No2, UNO.*
5. *ALL LVL MATERIAL IS 1 3/4" THICK, UNO.*
6. *RE: "TYPICAL WOOD HEADER TABLE" FOR HEADER SIZING AND NUMBER OF TRIMMER STUDS WHERE INDICATED "HDR" ON PLAN.*
7. *WHEN NOT SPECIFIED AS "HDR", MINIMUM NUMBER OF KING STUDS EACH SIDE OF OPENING IS EQUAL TO HALF THE NUMBER OF STUDS INTERRUPTED BY HEADER PLUS ONE, (2) MIN. RE: "TYPICAL WOOD HEADER TABLE" FOR ATTACHMENT OF HEADER TO KING STUDS.*
8. *RE: ARCH FOR WINDOW AND DOOR LOCATIONS.*
9. *COORDINATE FRAMING LAYOUT WITH LIGHTING LOCATIONS, RE: ARCH.*
10. *RE: SHEET S0001 FOR GENERAL NOTES AND LEGENDS.*
11. *RE: SHEET S0011 FOR LOAD KEYS.*
12. *RE: SHEET S0021 FOR TYPICAL DETAILS.*
13. *RE: SHEET S0501 FOR SHEAR WALL, HOLDOWN, HANGER, AND BASE PLATE SCHEDULES.*

THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS ON THE PROJECT TO CLEARLY DEFINE ALL OF THE REQUIREMENTS FOR THE CONSTRUCTION. WHERE CONFLICTS OCCUR CONTACT ARCHITECT FOR CLARIFICATION.

THE STRUCTURAL ENGINEERS SEAL ON THIS DRAWING INDICATES THAT THE INFORMATION SHOWN AND THE CALCULATIONS PERTAINING TO THAT INFORMATION HAVE BEEN PREPARED BY QUALIFIED PEOPLE UNDER THE DIRECTION OF THE ENGINEER-OF-RECORD. THE SEAL DOES NOT IMPLY RESPONSIBILITY FOR INFORMATION NOT SHOWN ON THIS DRAWING AND SUCH RESPONSIBILITY IS SPECIFICALLY DISCLAIMED. ON PHASED PROJECTS, DRAWINGS THAT ARE ISSUED BUT NOT SEALED SHALL BE CONSIDERED TO BE PRELIMINARY IN NATURE AND ARE ISSUED FOR INFORMATION ONLY.

Mon 02/09/2026 09:35:08 AM

APPROVAL STAMPS:

No.	Date	Description

SUBMISSIONS & REVISIONS

OWNER

MAY REIGLER PROPERTIES
2201 Wisconsin Ave NW Suite 200
Washington, DC 20007
www.mayriegler.com

ARCHITECT

KEVIN & ASAKO SPERRY ARCHITECTURE
3318 N. Columbus Street
Arlington, VA 22207
T.312.636.3248 / 312.636.4252
www.kasa-arch.com

GENERAL CONTRACTOR

DENEUVE CONSTRUCTION
2344 Spruce Street
Boulder, CO 80302
T: 303.444.6633

CIVIL ENGINEER

LANDMARK ENGINEERING
141 9th Street, PO Box 774943
Steamboat Springs, CO 80477
T.970.871.9494

LANDSCAPE ARCHITECT

STRUCTURAL ENGINEER

KL&A ENGINEERS & BUILDERS
1717 Washington Ave.
Golden, CO 80401
T. 303.384.9910

M.E.P. & F.P. ENGINEERS

BOULDER ENGINEERING
1717 15th Street
Boulder, CO 80302
T. 303.444.6038

INTERIOR DESIGNER:

JOHNSON NATHAN STROHE
1600 Wynkoop St., Suite 100
Denver, CO 80202
T.303.892.7062

PROJECT LOCATION

STEAMBOAT BASECAMP II

STEAMBOAT BASECAMP, LOT 2
STEAMBOAT SPRINGS, CO 80487

DRAWING TITLE

LEVEL 2 FRAMING PLAN

SEAL

DATE: 11/25/25
DRAWN BY: Author
CHECKED BY: Checker
PROJECT NO:

DRAWING NO:

S0102

© 2022 KL&A, INC

COPYRIGHT 2019

LOAD KEY LEGEND

LOAD AREA	PATTERN	SELF WEIGHT (psf) (NOTES 1&2)	SUPERIMPOSED LOADS: DEAD LOAD (psf) (NOTE 3)	LIVE LOAD (psf) (NOTES 5&7)	SNOW LOAD (psf) (NOTES 6&7)	VERT WIND LOAD (psf) (NOTES 8&10)	HYDROSTATIC UPLIFT LOAD (NOTES 9&10)	LIVE LOAD REDUCTION	DESCRIPTION OF LOAD	NOTES
1		7	35	40	--	--	--	YES	TYPICAL RESIDENTIAL FLOOR	--
2		6	40	60	--	--	--	YES	TYPICAL BALCONY	SEE NOTES 1,2,4,5
3		6	20	20	73 + Drift	--	--	YES	TYPICAL ROOF	
4		5	35	100	--	--	--	NO	STAIRS/COMMONS	
5		5	30	40	--	--	--	YES	LOFT SPACE	
6										

Wall Summary

Load #	Description of Load	Self Weight (psf)	Superimposed Dead Load (psf)
1	Interior Wall	4	6
2	Exterior Wall (Metal Siding)	3	7
3	Elevator Core	51	0
4	Exterior Wall (Stucco)	5	12
5	Exterior Wall	0	0

Level 2 - Walls Below

Description	Quantity	Unit
Wall-1_2x6-Int-Brng	969.7529000	ft
Wall-2_2x6-Ext-Brg-Mtl-Sdng	465.0664000	ft
Wall-3_CMU-8"	34.8807100	ft

1 S0102 LEVEL 2 FRAMING PLAN

1/8" = 1'-0"

N

WOOD FLOOR FRAMING PLAN NOTES:

1. *TYPICAL FLOOR IS ARCHITECTURAL FINISHES OVER 1 1/2" MAX GYPCRETE TOPPING SLAB OVER 3/4" T&G OSB/PLYWOOD FLOOR SHEATHING OVER PREMANUFACTURED WOOD FLOOR TRUSSES. TYPICAL FLOOR SHEATHING ATTACHMENT IS GLUE AND NAIL WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD, UNO.*
2. *TYPICAL EXTERIOR WALL IS 1/2" OSB/PLYWOOD WALL SHEATHING ON 2x6 DFL No2@SPACING SHOWN IN BEARING WALL SCHEDULE, UNO. ATTACH WALL SHEATHING WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD UNLESS DESIGNATED AS A SHEAR WALL. RE: SHEAR WALL SCHEDULE FOR SHEAR WALL NAILING.*
3. *TYPICAL INTERIOR STRUCTURAL WALL IS 2x6 DFL No2 @SPACING SHOWN IN BEARING WALL SCHEDULE, UNO.*
4. *TYPICAL COLUMN IS (3)2x6 DFL No2, UNO.*
5. *ALL LVL MATERIAL IS 1 3/4" THICK, UNO.*
6. *RE: "TYPICAL WOOD HEADER TABLE" FOR HEADER SIZING AND NUMBER OF TRIMMER STUDS WHERE INDICATED "HDR" ON PLAN.*
7. *WHEN NOT SPECIFIED AS "HDR", MINIMUM NUMBER OF KING STUDS EACH SIDE OF OPENING IS EQUAL TO HALF THE NUMBER OF STUDS INTERRUPTED BY HEADER PLUS ONE, (2) MIN. RE: "TYPICAL WOOD HEADER TABLE" FOR ATTACHMENT OF HEADER TO KING STUDS.*
8. *RE: ARCH FOR WINDOW AND DOOR LOCATIONS.*
9. *COORDINATE FRAMING LAYOUT WITH LIGHTING LOCATIONS, RE: ARCH.*
10. *RE: SHEET S0001 FOR GENERAL NOTES AND LEGENDS.*
11. *RE: SHEET S0011 FOR LOAD KEYS.*
12. *RE: SHEET S0021 FOR TYPICAL DETAILS.*
13. *RE: SHEET S0501 FOR SHEAR WALL, HOLDDOWN, HANGER, AND BASE PLATE SCHEDULES.*

THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS ON THE PROJECT TO CLEARLY DEFINE ALL OF THE REQUIREMENTS FOR THE CONSTRUCTION. WHERE CONFLICTS OCCUR CONTACT ARCHITECT FOR CLARIFICATION.

THE STRUCTURAL ENGINEERS SEAL ON THIS DRAWING INDICATES THAT THE INFORMATION SHOWN AND THE CALCULATIONS PERTAINING TO THAT INFORMATION HAVE BEEN PREPARED BY QUALIFIED PEOPLE UNDER THE DIRECTION OF THE ENGINEER-OF-RECORD. THE SEAL DOES NOT IMPLY RESPONSIBILITY FOR INFORMATION PREPARED BY OTHERS NOR FOR ANY INFORMATION NOT SHOWN ON THIS DRAWING AND SUCH RESPONSIBILITY IS SPECIFICALLY DISCLAIMED. ON PHASED PROJECTS, DRAWINGS THAT ARE ISSUED BUT NOT SEALED SHALL BE CONSIDERED TO BE PRELIMINARY IN NATURE AND ARE ISSUED FOR INFORMATION ONLY.

Mon 02/09/2026 09:35:08 AM

APPROVAL STAMPS:

No.	Date	Description

SUBMISSIONS & REVISIONS

OWNER

MAY REIGLER PROPERTIES
2201 Wisconsin Ave NW Suite 200
Washington, DC 20007
www.mayriegler.com

ARCHITECT

KEVIN & ASAKO SPERRY ARCHITECTURE
3318 N. Columbus Street
Arlington, VA 22207
T.312.636.3248 / 312.636.4252
www.kasa-arch.com

GENERAL CONTRACTOR

DENEUVE CONSTRUCTION
2344 Spruce Street
Boulder, CO 80302
T: 303.444.6633

CIVIL ENGINEER

LANDMARK ENGINEERING
141 9th Street, PO Box 774943
Steamboat Springs, CO 80477
T.970.871.9494

LANDSCAPE ARCHITECT

STRUCTURAL ENGINEER

KL&A ENGINEERS & BUILDERS
1717 Washington Ave.
Golden, CO 80401
T. 303.384.9910

© 2022 KL&A, INC

M.E.P. & F.P. ENGINEERS

BOULDER ENGINEERING
1717 15th Street
Boulder, CO 80302
T. 303.444.6038

INTERIOR DESIGNER:

JOHNSON NATHAN STROHE
1600 Wynkoop St., Suite 100
Denver, CO 80202
T.303.892.7062

PROJECT LOCATION

STEAMBOAT BASECAMP II

STEAMBOAT BASECAMP, LOT 2
STEAMBOAT SPRINGS, CO 80487

DRAWING TITLE

LEVEL 2 FRAMING PLAN

SEAL	DATE: 11/25/25
	DRAWN BY: Author
	CHECKED BY: Checker
	PROJECT NO:

DRAWING NO:

S0102

COPYRIGHT 2019

KL&A Engineers & Builders

Title	Basecamp II	Date	02/22/26	Job No.	25336
Subject	Flat Loads	By	CGC	Sheet	of

Total Building Seismic Mass: **3564 kips**

Stories: 6

Seismic Story Weights

		Floors and Roofs				Walls Above						Walls Below					
Story	Seismic Story Weight	Load Type	Load (psf)	Area (ft^2)	Total Mass (k)	Wall Type	Load (psf)	Length (ft)	Height (ft)	Total Mass (k)	Exclusions	Wall Type	Load (psf)	Length (ft)	Height (ft)	Total Mass (k)	Exclusions
High Roof	W_r= 475.4 k	Load 3 - Typical Roof Load 3 - Typical Roof	48 48	7131 966	342.3 46.4	Wall 3 - 8" CMU	78	35	1	2.7		Wall 1 - Interior Wall Wall 1 - Interior Wall Wall 2 - Exterior Wall Wall 2 - Exterior Wall Wall 3 - 8" CMU	9 9 16 16 78	123 150 392 245 35	5.1667 7.7917 5.1667 7.7917 1.9167	6.0 11.0 31.8 30.0 5.2	
	wp_r_ns= 475.4 k																
	wp_r_ew= 475.4 k																
Roof	W_6= 429.3 k	Load 3 - Typical Roof Load 5 - Loft	48 30	4265 3195	204.7 95.9	Wall 1 - Interior Wall Wall 2 - Exterior Wall Wall 2 - Exterior Wall Wall 3 - 8" CMU	9 16 16 78	526 34 256 35	5.1667 2 5.1667 1.9167	25.6 1.1 20.8 5.2		Wall 1 - Interior Wall Wall 2 - Exterior Wall Wall 3 - 8" CMU	9 16 78	872 233 35	5.2083 5.2083 5.2083	42.8 19.0 14.2	
	wp_6_ns= 429.3 k																
	wp_6_ew= 429.3 k																
LEVEL 5	W_5= 675.3 k	Load 1 - Typical Residential Floor Load 2 - Typical Balcony Load 4 - Stair/Commons	42 46 41	9438 319 714	396.4 14.7 29.3	Wall 1 - Interior Wall Wall 1 - Interior Wall Wall 2 - Exterior Wall Wall 2 - Exterior Wall Wall 3 - 8" CMU	9 9 16 16 78	872 148 334 245 35	5.2083 7.7917 5.2083 7.7917 5.2083	42.8 10.9 27.3 30.0 14.2		Wall 1 - Interior Wall Wall 2 - Exterior Wall Wall 3 - 8" CMU	9 16 78	1034 539 35	5.25 5.25 5.25	51.1 44.4 14.3	
	wp_5_ns= 675.3 k																
	wp_5_ew= 675.3 k																
LEVEL 4	W_4= 659.4 k	Load 1 - Typical Residential Floor Load 2 - Typical Balcony Load 4 - Stair/Commons	42 46 41	9594 162 714	402.9 7.5 29.3	Wall 1 - Interior Wall Wall 2 - Exterior Wall Wall 3 - 8" CMU	9 16 78	1034 539 35	5.25 5.25 5.25	51.1 44.4 14.3		Wall 1 - Interior Wall Wall 2 - Exterior Wall Wall 3 - 8" CMU	9 16 78	1034 539 35	5.25 5.25 5.25	51.1 44.4 14.3	
	wp_4_ns= 659.4 k																
	wp_4_ew= 659.4 k																
LEVEL 3	W_3= 655.9 k	Load 1 - Typical Residential Floor Load 2 - Typical Balcony Load 4 - Stair/Commons	42 46 41	9594 162 714	402.9 7.5 29.3	Wall 1 - Interior Wall Wall 2 - Exterior Wall Wall 3 - 8" CMU	9 16 78	1034 539 35	5.25 5.25 5.25	51.1 44.4 14.3		Wall 1 - Interior Wall Wall 2 - Exterior Wall Wall 3 - 8" CMU	9 16 78	1034 496 35	5.25 5.25 5.25	51.1 40.9 14.3	
	wp_3_ns= 655.9 k																
	wp_3_ew= 655.9 k																
LEVEL 2	W_2= 668.6 k	Load 1 - Typical Residential Floor Load 2 - Typical Balcony Load 3 - Typical Roof Load 4 - Stair/Commons	42 46 48 41	9594 162 437 714	402.9 7.5 21.0 29.3	Wall 1 - Interior Wall Wall 2 - Exterior Wall Wall 3 - 8" CMU	9 16 78	1034 497 35	5.25 5.25 5.25	51.1 40.9 14.3		Wall 1 - Interior Wall Wall 2 - Exterior Wall Wall 3 - 8" CMU	9 16 78	970 466 35	5.2917 5.2917 5.2917	48.4 38.7 14.4	
	wp_2_ns= 668.6 k																
	wp_2_ew= 668.6 k																

Title	Basecamp II	Date	2 22 26	Job No.	25336
Subject	Lateral Forces	By	CGC	Sheet	of

Wind and Seismic Data

International Building Code: 2021 International Building Code
Governing ASCE: ASCE 7-16
Design Criteria File: 25336_SBBC-II_100_Code-Search_251117

Seismic Loading Data

		North/South			East/West	
Seismic Response Coefficient	Cs	0.032		Cs	0.032	
Building Period	T	0.433	sec	T	0.433	sec
Spectral Response acceleration parameters	S_{DS}	0.2		g		
	S_{D1}	0.048		g		

Seismic Importance Factor I_e 1.00

Seismic Weight Data

Level ID	Level/Diaphragm Name	W, Total Weight	w_{px_ns}	w_{px_ew}
HR	High Roof	475.4 K		
MR	Main Roof	429.3 K		
L5	Level 5	675.3 K		
L4	Level 4	659.4 K		
L3	Level 3	655.9 K		
L2	Level 2	668.6 K		
L1				

Title	Basecamp II	Date	2 22 26	Job No.	25336
Subject	Lateral Forces	By	CGC	Sheet	of

Seismic Load Calculation - Equivalent Lateral Force Procedure

ASCE 7-16, §12.8 *All forces are shown as 1.0E*

Building Period	T_x =	0.433 s	T_z =	0.433 s
Seismic Response Coefficient	C_s_x =	0.032	C_s_z =	0.032
Structure Period Exponent	k =	1.00	k =	1.00

North/South

Diaph Number	Story Elevation	Story Weight	Story Force	Story Shear	Story Moment
	h, ft	w_i, K	F_i, k	V_i, k	K-ft
HR	57.66667	475.4	**26.1**	26.1	0
MR	52.5	429.3	**21.4**	47.5	134.7
L5	42	675.3	**27.0**	74.5	633.7
L4	31.5	659.4	**19.8**	94.3	1416.0
L3	21	655.9	**13.1**	107.4	2405.8
L2	10.5	668.6	**6.7**	114.0	3533.1
--					
--					
--					
--					
--					
--					
L1	0	GROUND LEVEL			4731

Total Bldg Weight	3563.9	K	
N/S Base Shear	(1.0E)	**114 K**	
	(0.7E)	**80 K**	

East/West

Diaph Number	Story Elevation	Story Weight	Story Force	Story Shear	Story Moment
	h, ft	w_i, K	F_i, k	V_i, k	K-ft
HR	57.66667	475.4	**26.1**	26.1	0
MR	52.5	429.3	**21.4**	47.5	134.7
L5	42	675.3	**27.0**	74.5	633.7
L4	31.5	659.4	**19.8**	94.3	1416.0
L3	21	655.9	**13.1**	107.4	2405.8
L2	10.5	668.6	**6.7**	114.0	3533.1
--					
--					
--					
--					
--					
--					
L1	0	GROUND LEVEL			4731

Total Bldg Weight	3563.9	K	
E/W Base Shear	(1.0E)	**114 K**	
	(0.7E)	**80 K**	

Title	Basecamp II	Date	2 22 26	Job No.	25336
Subject	Lateral Forces	By	CGC	Sheet	of

Seismic Load Calculation - Diaphragm Forces

ASCE 7-16, §12.10 *All forces are shown as 1.0E*

S_{DS} = 0.2 g Ie = 1.00

North/South

Diaph Number	Calc'd Dipah Force K	Min. Diaph. Force K	Max Diaph. Force K	Control Diaph. Force K	Diaph. Ampl. Factor
HR	26.1	19.0	38.0	**26.1**	1.00
MR	22.5	17.2	34.3	**22.5**	1.05
L5	31.8	27.0	54.0	**31.8**	1.18
L4	27.8	26.4	52.8	**27.8**	1.40
L3	24.3	26.2	52.5	**26.2**	2.00
L2	21.4	26.7	53.5	**26.7**	4.00
--					
--					
--					
--					
--					
--					
L1		GROUND LEVEL			

Engineer Comments:

East/West

Diaph Number	Calc'd Dipah Force K	Min. Diaph. Force K	Max Diaph. Force K	Control Diaph. Force K	Diaph. Ampl. Factor
HR	26.1	19.0	38.0	**26.1**	1.00
MR	22.5	17.2	34.3	**22.5**	1.05
L5	31.8	27.0	54.0	**31.8**	1.18
L4	27.8	26.4	52.8	**27.8**	1.40
L3	24.3	26.2	52.5	**26.2**	2.00
L2	21.4	26.7	53.5	**26.7**	4.00
--					
--					
--					
--					
--					
--					
L1		GROUND LEVEL			

Engineer Comments:

Lateral Force Comparisons

All forces are shown as 1.0E and 1.0W

STORY FORCE COMPARISON

Level	North/South Direction			East/West Direction		
	Wind Load [k]	Seismic Load [k]	Governing Case	Wind Load [k]	Seismic Load [k]	Governing Case
HR	26.98	26.08	Wind Load	23.63	26.08	Seismic Load
MR	14.63	21.44	Seismic Load	11.61	21.44	Seismic Load
L5	25.16	26.98	Seismic Load	21.88	26.98	Seismic Load
L4	22.52	19.76	Wind Load	19.39	19.76	Seismic Load
L3	20.80	13.10	Wind Load	18.12	13.10	Wind Load
L2	19.00	6.68	Wind Load	16.86	6.68	Wind Load

DIAPHRAGM FORCE COMPARISON

Level	North/South Direction			East/West Direction		
	Wind Load [k]	Seismic Load [k]	Governing Case	Wind Load [k]	Seismic Load [k]	Governing Case
HR	26.98	26.08	Wind Load	23.63	26.08	Seismic Load
MR	14.63	22.55	Seismic Load	11.61	22.55	Seismic Load
L5	25.16	31.84	Seismic Load	21.88	31.84	Seismic Load
L4	22.52	27.76	Seismic Load	19.39	27.76	Seismic Load
L3	20.80	26.24	Seismic Load	18.12	26.24	Seismic Load
L2	19.00	26.74	Seismic Load	16.86	26.74	Seismic Load

Building Base Shear Comparisons

Unfactored Loads			
Loading Direction	Wind Load [k]	Seismic Load [k]	
North/South	**129**	114	**<-- Wind Load > Seismic Load**
East/West	112	**114**	**<-- Seismic Load > Wind Load**

Allowable Loads			
Loading Direction	0.6*WL [k]	0.7*EL [k]	
North/South	77	**80**	**<-- 0.7*EL > 0.6*WL**
East/West	67	**80**	**<-- 0.7*EL > 0.6*WL**

Wind Load Governs North/South Direction for Global Base Shear

Seismic Load Governs in East/West Direction for Global Base Shear

502. MAIN LATERAL FORCE RESISTING SYSTEM DESIGN

TYPICAL BEARING WALL SCHEDULE, UNO

BEARING LEVEL	STUD SIZE		EXTERIOR WALLS	INTERIOR WALLS	CORRIDOR WALLS
LOFT	2x6	STUD SPACING	16" OC	16" OC	16" OC
		TOP PLATE QUANTITY	(2)	(2)	(2)
LEVEL 5	2x6	STUD SPACING	16" OC	16" OC	12" OC
		TOP PLATE QUANTITY	(2)	(2)	(2)
LEVEL 4	2x6	STUD SPACING	16" OC	16" OC	12" OC
		TOP PLATE QUANTITY	(2)	(2)	(2)
LEVEL 3	2x6	STUD SPACING	16" OC	12" OC	12" OC
		TOP PLATE QUANTITY	(2)	(2)	(2)
LEVEL 2	2x6	STUD SPACING	16" OC	12" OC	12" OC
		TOP PLATE QUANTITY	(2)	(3)	(3)
LEVEL 1	2x6	STUD SPACING	12" OC	12" OC	12" OC
		TOP PLATE QUANTITY	(2)	(3)	(3)

NOTES:
1. USE THE SPACING AND TOP PLATE QUANTITY INDICATED IN THIS TABLE UNLESS NOTED OTHERWISE ON PLAN
2. AT EXTERIOR WALL PROVIDE 1/2" OSB/PLYWOOD WALL SHEATHING, ATTACH W/ 8d@6"OC EDGE, 12"OC FIELD
3. WHERE SHEATHING IS NOT PRESENT ON BOTH SIDES OF WALL, PROVIDE BLOCKING @ 4'-0" OC
4. RE:XXXX FOR EALL TYPES NOTED WAF ON PLAN
5. ALL EXTERIOR WALL FRAMING (STUDS AND SHEATHING) SHALL BE FIRE RESISTANT TREATED WOOD, RE: SPECIFICATIONS. RE: ARCH FOR ALTERNATE NON-COMBUSTIBLE SHEATHING. ALTERNATE SHEATHING TO HAVE SAME NAIL SPACING REQUIRED IN THIS TABLE AND SHEAR WALL SCHEDULE - SCREWS NOT PERMITTED.

PREMANUFACTURED WOOD TRUSS SCHEDULE

MARK	DESCRIPTION	REMARKS
FT	FLOOR TRUSS (COMMON)	NOTES 1, 3, 5
RT	ROOF TRUSS (COMMON)	NOTES 1, 3, 5
GT	GIRDER TRUSS	NOTES 2, 3, 5
SGT	STRUCTURAL GABLE ROOF TRUSS	NOTES 1, 4, 5
MT	MONO PITCH ROOF TRUSS	NOTES 1, 4, 5
DT (#)	DRAG/COLLECTOR TRUSS	NOTES 1, 3, 5

NOTES:
1. MAXIMUM TRUSS SPACING IS 24"OC. ACTUAL SPACING AND TRUSS LAYOUT DETERMINED BY SUPPLIER.
2. GIRDER TRUSS PLY QUANTITY DETERMINED BY TRUSS SUPPLIER.
3. TRUSS-TO-TRUSS CONNECTORS TO BE DESIGNED, SPECIFIED, AND SUPPLIED BY TRUSS SUPPLIER.
4. MONO PITCH ROOF TRUSS DEPTH VARIES. TOP CHORD SLOPES WITH SHEATHING. BOTTOM CHORD FLAT, UNO.
5. TRUSSES DENOTED WITH (X,XXX#) INDICATE DRAG/COLLECTOR TRUSSES TO BE DESIGNED FOR AXIAL COLLECTOR FORCE IN LBS DENOTED IN ( ).

1 S0107 HIGH ROOF FRAMING PLAN

1/8" = 1'-0"

N

ROOF PLAN NOTES:
1. TYPICAL ROOF IS FINISHES AND INSULATION OVER 3/4" OSB/PLYWOOD ROOF SHEATHING OVER PREMANUFACTURED WOOD ROOF TRUSSES. ATTACH ROOF SHEATHING WITH 8d@6"OC AT EDGES AND 8d@12"OC IN FIELD, UNO.
2. ALL LVL MATERIAL IS 1 3/4" THICK, UNO.
3. RE: "TYPICAL WOOD HEADER TABLE" FOR HEADER SIZING AND NUMBER OF TRIMMER STUDS WHERE INDICATED "HDR" ON PLAN.
4. WHEN NOT SPECIFIED AS "HDR", MINIMUM NUMBER OF KING STUDS EACH SIDE OF OPENING IS EQUAL TO HALF THE NUMBER OF STUDS INTERRUPTED BY HEADER PLUS ONE, (2) MIN. RE: "TYPICAL WOOD HEADER TABLE" FOR ATTACHMENT OF HEADER TO KING STUDS.
5. COORDINATE FRAMING LAYOUT WITH LIGHTING LOCATIONS, RE: ARCH.
6. RE: SHEET S0001 FOR GENERAL NOTES AND LEGENDS
7. RE: SHEET S0011 FOR LOAD KEYS
8. RE: SHEET S0021 FOR TYPICAL DETAILS
9. RE: SHEET S0501 FOR SHEAR WALL, HOLDOWN, AND HANGER SCHEDULES

#	KEYNOTE LEGEND

THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS ON THE PROJECT TO CLEARLY DEFINE ALL OF THE REQUIREMENTS FOR THE CONSTRUCTION. WHERE CONFLICTS OCCUR CONTACT ARCHITECT FOR CLARIFICATION.

THE STRUCTURAL ENGINEERS SEAL ON THIS DRAWING INDICATES THAT THE INFORMATION SHOWN AND THE CALCULATIONS PERTAINING TO THAT INFORMATION HAVE BEEN PREPARED BY QUALIFIED PEOPLE UNDER THE DIRECTION OF THE ENGINEER-OF-RECORD. THE SEAL DOES NOT IMPLY RESPONSIBILITY FOR INFORMATION PREPARED BY OTHERS NOR FOR ANY INFORMATION NOT SHOWN ON THIS DRAWING AND SUCH RESPONSIBILITY IS SPECIFICALLY DISCLAIMED. ON PHASED PROJECTS, DRAWINGS THAT ARE ISSUED BUT NOT SEALED SHALL BE CONSIDERED TO BE PRELIMINARY IN NATURE AND ARE ISSUED FOR INFORMATION ONLY.

Mon 02/23/2026 11:57:34 AM

APPROVAL STAMPS:

No.	Date	Description

SUBMISSIONS & REVISIONS

OWNER

MAY REIGLER PROPERTIES
2201 Wisconsin Ave NW Suite 200
Washington, DC 20007
www.mayriegler.com

ARCHITECT

KEVIN & ASAKO SPERRY ARCHITECTURE
3318 N. Columbus Street
Arlington, VA 22207
T.312.636.3248 / 312.636.4252
www.kasa-arch.com

GENERAL CONTRACTOR

DENEUVE CONSTRUCTION
2344 Spruce Street
Boulder, CO 80302
T: 303.444.6633

CIVIL ENGINEER

LANDMARK ENGINEERING
141 9th Street, PO Box 774943
Steamboat Springs, CO 80477
T.970.871.9494

LANDSCAPE ARCHITECT

STRUCTURAL ENGINEER

KL&A ENGINEERS & BUILDERS
1717 Washington Ave.
Golden, CO 80401
T. 303.384.9910

© 2022 KL&A, INC

M.E.P. & F.P. ENGINEERS

BOULDER ENGINEERING
1717 15th Street
Boulder, CO 80302
T. 303.444.6038

INTERIOR DESIGNER:

JOHNSON NATHAN STROHE
1600 Wynkoop St., Suite 100
Denver, CO 80202
T.303.892.7062

PROJECT LOCATION

STEAMBOAT BASECAMP II

STEAMBOAT BASECAMP, LOT 2
STEAMBOAT SPRINGS, CO 80487

DRAWING TITLE

HIGH ROOF FRAMING PLAN

SEAL

DATE: 11/25/25
DRAWN BY: Author
CHECKED BY: Checker
PROJECT NO:

DRAWING NO:

S0107

COPYRIGHT 2019

TYPICAL BEARING WALL SCHEDULE, UNO

BEARING LEVEL	STUD SIZE		EXTERIOR WALLS	INTERIOR WALLS	CORRIDOR WALLS
LOFT	2x6	STUD SPACING	16" OC	16" OC	16" OC
		TOP PLATE QUANTITY	(2)	(2)	(2)
LEVEL 5	2x6	STUD SPACING	16" OC	16" OC	12" OC
		TOP PLATE QUANTITY	(2)	(2)	(2)
LEVEL 4	2x6	STUD SPACING	16" OC	16" OC	12" OC
		TOP PLATE QUANTITY	(2)	(2)	(2)
LEVEL 3	2x6	STUD SPACING	16" OC	12" OC	12" OC
		TOP PLATE QUANTITY	(2)	(2)	(2)
LEVEL 2	2x6	STUD SPACING	16" OC	12" OC	12" OC
		TOP PLATE QUANTITY	(2)	(3)	(3)
LEVEL 1	2x6	STUD SPACING	12" OC	12" OC	12" OC
		TOP PLATE QUANTITY	(2)	(3)	(3)

NOTES:
1. USE THE SPACING AND TOP PLATE QUANTITY INDICATED IN THIS TABLE UNLESS NOTED OTHERWISE ON PLAN
2. AT EXTERIOR WALL PROVIDE 1/2" OSB/PLYWOOD WALL SHEATHING, ATTACH W/ 8d@6"OC EDGE, 12"OC FIELD
3. WHERE SHEATHING IS NOT PRESENT ON BOTH SIDES OF WALL, PROVIDE BLOCKING @ 4'-0" OC
4. RE:XXXX FOR EALL TYPES NOTED WAF ON PLAN
5. ALL EXTERIOR WALL FRAMING (STUDS AND SHEATHING) SHALL BE FIRE RESISTANT TREATED WOOD, RE: SPECIFICATIONS. RE: ARCH FOR ALTERNATE NON-COMBUSTIBLE SHEATHING. ALTERNATE SHEATHING TO HAVE SAME NAIL SPACING REQUIRED IN THIS TABLE AND SHEAR WALL SCHEDULE - SCREWS NOT PERMITTED.

PREMANUFACTURED WOOD TRUSS SCHEDULE

MARK	DESCRIPTION	REMARKS
FT	FLOOR TRUSS (COMMON)	NOTES 1, 3, 5
RT	ROOF TRUSS (COMMON)	NOTES 1, 3, 5
GT	GIRDER TRUSS	NOTES 2, 3, 5
SGT	STRUCTURAL GABLE ROOF TRUSS	NOTES 1, 4, 5
MT	MONO PITCH ROOF TRUSS	NOTES 1, 4, 5
DT (#)	DRAG/COLLECTOR TRUSS	NOTES 1, 3, 5

NOTES:
1. MAXIMUM TRUSS SPACING IS 24"OC. ACTUAL SPACING AND TRUSS LAYOUT DETERMINED BY SUPPLIER.
2. GIRDER TRUSS PLY QUANTITY DETERMINED BY TRUSS SUPPLIER.
3. TRUSS-TO-TRUSS CONNECTORS TO BE DESIGNED, SPECIFIED, AND SUPPLIED BY TRUSS SUPPLIER.
4. MONO PITCH ROOF TRUSS DEPTH VARIES. TOP CHORD SLOPES WITH SHEATHING. BOTTOM CHORD FLAT, UNO.
5. TRUSSES PROVIDED WITH (#) MINIMUM DRAG/COLLECTOR TRUSSES TO RESIST SEISMIC FORCES SHOWN IN LBS DENOTED IN ( ).

1 S0106 ROOF FRAMING PLAN

1/8" = 1'-0"

N

ROOF PLAN NOTES:

1. TYPICAL ROOF IS FINISHES AND INSULATION OVER 3/4" OSB/PLYWOOD ROOF SHEATHING OVER PREMANUFACTURED WOOD ROOF TRUSSES. ATTACH ROOF SHEATHING WITH 8d@6"OC AT EDGES AND 8d@12"OC IN FIELD, UNO.
2. ALL LVL MATERIAL IS 1 3/4" THICK, UNO.
3. RE: "TYPICAL WOOD HEADER TABLE" FOR HEADER SIZING AND NUMBER OF TRIMMER STUDS WHERE INDICATED "HDR" ON PLAN.
4. WHEN NOT SPECIFIED AS "HDR", MINIMUM NUMBER OF KING STUDS EACH SIDE OF OPENING IS EQUAL TO HALF THE NUMBER OF STUDS INTERRUPTED BY HEADER PLUS ONE, (2) MIN. RE: "TYPICAL WOOD HEADER TABLE" FOR ATTACHMENT OF HEADER TO KING STUDS.
5. COORDINATE FRAMING LAYOUT WITH LIGHTING LOCATIONS, RE: ARCH.
6. RE: SHEET S0001 FOR GENERAL NOTES AND LEGENDS
7. RE: SHEET S0011 FOR LOAD KEYS
8. RE: SHEET S0021 FOR TYPICAL DETAILS
9. RE: SHEET S0501 FOR SHEAR WALL, HOLDOWN, AND HANGER SCHEDULES

WOOD FLOOR FRAMING PLAN NOTES:

1. TYPICAL FLOOR IS ARCHITECTURAL FINISHES OVER 1 1/2" MAX GYPCRETE TOPPING SLAB OVER 3/4" T&G OSB/PLYWOOD FLOOR SHEATHING OVER PREMANUFACTURED WOOD FLOOR TRUSSES. TYPICAL FLOOR SHEATHING ATTACHMENT IS GLUE AND NAIL WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD, UNO.
2. TYPICAL EXTERIOR WALL IS 1/2" OSB/PLYWOOD WALL SHEATHING ON 2x6 DFL No2@SPACING SHOWN IN BEARING WALL SCHEDULE, UNO. ATTACH WALL SHEATHING WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD UNLESS DESIGNATED AS A SHEAR WALL. RE: SHEAR WALL SCHEDULE FOR SHEAR WALL NAILING.
3. TYPICAL INTERIOR STRUCTURAL WALL IS 2x6 DFL No2 @SPACING SHOWN IN BEARING WALL SCHEDULE, UNO.
4. TYPICAL COLUMN IS (3)2x6 DFL No2, UNO.
5. ALL LVL MATERIAL IS 1 3/4" THICK, UNO.
6. RE: "TYPICAL WOOD HEADER TABLE" FOR HEADER SIZING AND NUMBER OF TRIMMER STUDS WHERE INDICATED "HDR" ON PLAN.
7. WHEN NOT SPECIFIED AS "HDR", MINIMUM NUMBER OF KING STUDS EACH SIDE OF OPENING IS EQUAL TO HALF THE NUMBER OF STUDS INTERRUPTED BY HEADER PLUS ONE, (2) MIN. RE: "TYPICAL WOOD HEADER TABLE" FOR ATTACHMENT OF HEADER TO KING STUDS.
8. RE: ARCH FOR WINDOW AND DOOR LOCATIONS.
9. COORDINATE FRAMING LAYOUT WITH LIGHTING LOCATIONS, RE: ARCH.
10. RE: SHEET S0001 FOR GENERAL NOTES AND LEGENDS.
11. RE: SHEET S0011 FOR LOAD KEYS.
12. RE: SHEET S0021 FOR TYPICAL DETAILS.
13. RE: SHEET S0501 FOR SHEAR WALL, HOLDOWN, HANGER, AND BASE PLATE SCHEDULES.

KEYNOTE LEGEND

THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS ON THE PROJECT TO CLEARLY DEFINE ALL OF THE REQUIREMENTS FOR THE CONSTRUCTION. WHERE CONFLICTS OCCUR CONTACT ARCHITECT FOR CLARIFICATION.

THE STRUCTURAL ENGINEERS SEAL ON THIS DRAWING INDICATES THAT THE INFORMATION SHOWN AND THE CALCULATIONS PERTAINING TO THAT INFORMATION HAVE BEEN PREPARED BY QUALIFIED PEOPLE UNDER THE DIRECTION OF THE ENGINEER-OF-RECORD. THE SEAL DOES NOT IMPLY RESPONSIBILITY FOR INFORMATION PREPARED BY OTHERS NOR FOR ANY INFORMATION NOT SHOWN ON THIS DRAWING AND SUCH RESPONSIBILITY IS SPECIFICALLY DISCLAIMED. ON PHASED PROJECTS, DRAWINGS THAT ARE ISSUED BUT NOT SEALED SHALL BE CONSIDERED TO BE PRELIMINARY IN NATURE AND ARE ISSUED FOR INFORMATION ONLY.

Mon 02/23/2026 11:57:32 AM

APPROVAL STAMPS:

No.	Date	Description

SUBMISSIONS & REVISIONS

OWNER

MAY REIGLER PROPERTIES
2201 Wisconsin Ave NW Suite 200
Washington, DC 20007
www.mayriegler.com

ARCHITECT

KEVIN & ASAKO SPERRY ARCHITECTURE
3318 N. Columbus Street
Arlington, VA 22207
T.312.636.3248 / 312.636.4252
www.kasa-arch.com

GENERAL CONTRACTOR

DENEUVE CONSTRUCTION
2344 Spruce Street
Boulder, CO 80302
T: 303.444.6633

CIVIL ENGINEER

LANDMARK ENGINEERING
141 9th Street, PO Box 774943
Steamboat Springs, CO 80477
T.970.871.9494

LANDSCAPE ARCHITECT

STRUCTURAL ENGINEER

KL&A ENGINEERS & BUILDERS
1717 Washington Ave.
Golden, CO 80401
T. 303.384.9910
© 2022 KL&A, INC
M.E.P. & F.P. ENGINEERS

BOULDER ENGINEERING
1717 15th Street
Boulder, CO 80302
T. 303.444.6038

INTERIOR DESIGNER:

JOHNSON NATHAN STROHE
1600 Wynkoop St., Suite 100
Denver, CO 80202
T.303.892.7062

PROJECT LOCATION

STEAMBOAT BASECAMP II

STEAMBOAT BASECAMP, LOT 2
STEAMBOAT SPRINGS, CO 80487

DRAWING TITLE

ROOF FRAMING PLAN

SEAL	DATE: 11/25/25
	DRAWN BY: Author
	CHECKED BY: Checker
	PROJECT NO:

DRAWING NO:

S0106

COPYRIGHT 2019

TYPICAL BEARING WALL SCHEDULE, UNO

BEARING LEVEL	STUD SIZE		EXTERIOR WALLS	INTERIOR WALLS	CORRIDOR WALLS
LOFT	2x6	STUD SPACING	16" OC	16" OC	16" OC
		TOP PLATE QUANTITY	(2)	(2)	(2)
LEVEL 5	2x6	STUD SPACING	16" OC	16" OC	12" OC
		TOP PLATE QUANTITY	(2)	(2)	(2)
LEVEL 4	2x6	STUD SPACING	16" OC	16" OC	12" OC
		TOP PLATE QUANTITY	(2)	(2)	(2)
LEVEL 3	2x6	STUD SPACING	16" OC	12" OC	12" OC
		TOP PLATE QUANTITY	(2)	(2)	(2)
LEVEL 2	2x6	STUD SPACING	16" OC	12" OC	12" OC
		TOP PLATE QUANTITY	(2)	(3)	(3)
LEVEL 1	2x6	STUD SPACING	12" OC	12" OC	12" OC
		TOP PLATE QUANTITY	(2)	(3)	(3)

NOTES:
1. USE THE SPACING AND TOP PLATE QUANTITY INDICATED IN THIS TABLE UNLESS NOTED OTHERWISE ON PLAN
2. AT EXTERIOR WALL PROVIDE 1/2" OSB/PLYWOOD WALL SHEATHING, ATTACH W/ 8d@6"OC EDGE, 12"OC FIELD
3. WHERE SHEATHING IS NOT PRESENT ON BOTH SIDES OF WALL, PROVIDE BLOCKING @ 4'-0" OC
4. RE:XXXX FOR EALL TYPES NOTED WAF ON PLAN
5. ALL EXTERIOR WALL FRAMING (STUDS AND SHEATHING) SHALL BE FIRE RESISTANT TREATED WOOD. RE: SPECIFICATIONS. RE: ARCH FOR ALTERNATE NON-COMBUSTIBLE SHEATHING. ALTERNATE SHEATHING TO HAVE SAME NAIL SPACING REQUIRED IN THIS TABLE AND SHEAR WALL SCHEDULE - SCREWS NOT PERMITTED.

PREMANUFACTURED WOOD TRUSS SCHEDULE

MARK	DESCRIPTION	REMARKS
FT	FLOOR TRUSS (COMMON)	NOTES 1, 3, 5
RT	ROOF TRUSS (COMMON)	NOTES 1, 3, 5
GT	GIRDER TRUSS	NOTES 2, 3, 5
SGT	STRUCTURAL GABLE ROOF TRUSS	NOTES 1, 4, 5
MT	MONO PITCH ROOF TRUSS	NOTES 1, 4, 5
DT (#)	DRAG/COLLECTOR TRUSS	NOTES 1, 3, 5

NOTES:
1. MAXIMUM TRUSS SPACING IS 24"OC. ACTUAL SPACING AND TRUSS LAYOUT DETERMINED BY SUPPLIER.
2. GIRDER TRUSS PLY QUANTITY DETERMINED BY TRUSS SUPPLIER.
3. TRUSS-TO-TRUSS CONNECTORS TO BE DESIGNED, SPECIFIED, AND SUPPLIED BY TRUSS SUPPLIER.
4. MONO PITCH ROOF TRUSS DEPTH VARIES. TOP CHORD SLOPES WITH SHEATHING, BOTTOM CHORD FLAT, UNO.
5. TRUSSES DENOTED WITH (X,XXX#) INDICATE DRAG/COLLECTOR TRUSSES TO BE DESIGNED FOR AXIAL COLLECTOR FORCE IN LBS DENOTED IN ( ).

1 S0105 LEVEL 5 FRAMING PLAN

1/8" = 1'-0"

N

WOOD FLOOR FRAMING PLAN NOTES:

1. TYPICAL FLOOR IS ARCHITECTURAL FINISHES OVER 1 1/2" MAX GYPCRETE TOPPING SLAB OVER 3/4" T&G OSB/PLYWOOD FLOOR SHEATHING OVER PREMANUFACTURED WOOD FLOOR TRUSSES. TYPICAL FLOOR SHEATHING ATTACHMENT IS GLUE AND NAIL WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD, UNO.
2. TYPICAL EXTERIOR WALL IS 1/2" OSB/PLYWOOD WALL SHEATHING ON 2x6 DFL No2@SPACING SHOWN IN BEARING WALL SCHEDULE, UNO. ATTACH WALL SHEATHING WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD UNLESS DESIGNATED AS A SHEAR WALL. RE: SHEAR WALL SCHEDULE FOR SHEAR WALL NAILING.
3. TYPICAL INTERIOR STRUCTURAL WALL IS 2x6 DFL No2 @SPACING SHOWN IN BEARING WALL SCHEDULE, UNO.
4. TYPICAL COLUMN IS (3)2x6 DFL No2, UNO.
5. ALL LVL MATERIAL IS 1 3/4" THICK, UNO.
6. RE: "TYPICAL WOOD HEADER TABLE" FOR HEADER SIZING AND NUMBER OF TRIMMER STUDS WHERE INDICATED "HDR" ON PLAN.
7. WHEN NOT SPECIFIED AS "HDR", MINIMUM NUMBER OF KING STUDS EACH SIDE OF OPENING IS EQUAL TO HALF THE NUMBER OF STUDS INTERRUPTED BY HEADER PLUS ONE, (2) MIN. RE: "TYPICAL WOOD HEADER TABLE" FOR ATTACHMENT OF HEADER TO KING STUDS.
8. RE: ARCH FOR WINDOW AND DOOR LOCATIONS.
9. COORDINATE FRAMING LAYOUT WITH LIGHTING LOCATIONS, RE: ARCH.
10. RE: SHEET S0001 FOR GENERAL NOTES AND LEGENDS.
11. RE: SHEET S0011 FOR LOAD KEYS.
12. RE: SHEET S0021 FOR TYPICAL DETAILS.
13. RE: SHEET S0501 FOR SHEAR WALL, HOLDDOWN, HANGER, AND BASE PLATE SCHEDULES.

	KEYNOTE LEGEND
8	LOCATION OF WF FRAMING TO BE ALLIGNED WITH HANGER ROD CONNECTION, GC TO COORDINATE LOCATION WITH STAIR DESIGNER

THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS ON THE PROJECT TO CLEARLY DEFINE ALL OF THE REQUIREMENTS FOR THE CONSTRUCTION. WHERE CONFLICTS OCCUR CONTACT ARCHITECT FOR CLARIFICATION.

THE STRUCTURAL ENGINEERS SEAL ON THIS DRAWING INDICATES THAT THE INFORMATION SHOWN AND THE CALCULATIONS PERTAINING TO THAT INFORMATION HAVE BEEN PREPARED BY QUALIFIED PEOPLE UNDER THE DIRECTION OF THE ENGINEER-OF-RECORD. THE SEAL DOES NOT IMPLY RESPONSIBILITY FOR INFORMATION PREPARED BY OTHERS NOR FOR ANY INFORMATION NOT SHOWN ON THIS DRAWING AND SUCH RESPONSIBILITY IS SPECIFICALLY DISCLAIMED. ON PHASED PROJECTS, DRAWINGS THAT ARE ISSUED BUT NOT SCALED SHALL BE CONSIDERED TO BE PRELIMINARY IN NATURE AND ARE ISSUED FOR INFORMATION ONLY.

Mon 02/23/2026 11:57:29 AM

APPROVAL STAMPS:

No.	Date	Description

SUBMISSIONS & REVISIONS

OWNER

MAY REIGLER PROPERTIES
2201 Wisconsin Ave NW Suite 200
Washington, DC 20007
www.mayriegler.com

ARCHITECT

KEVIN & ASAKO SPERRY ARCHITECTURE
3318 N. Columbus Street
Arlington, VA 22207
T.312.636.3248 / 312.636.4252
www.kasa-arch.com

GENERAL CONTRACTOR

DENEUVE CONSTRUCTION
2344 Spruce Street
Boulder, CO 80302
T: 303.444.6633

CIVIL ENGINEER

LANDMARK ENGINEERING
141 9th Street, PO Box 774943
Steamboat Springs, CO 80477
T.970.871.9494

LANDSCAPE ARCHITECT

STRUCTURAL ENGINEER

KL&A ENGINEERS & BUILDERS
1717 Washington Ave.
Golden, CO 80401
T. 303.384.9910

© 2022 KL&A, INC

M.E.P. & F.P. ENGINEERS

BOULDER ENGINEERING
1717 15th Street
Boulder, CO 80302
T. 303.444.6038

INTERIOR DESIGNER:

JOHNSON NATHAN STROHE
1600 Wynkoop St., Suite 100
Denver, CO 80202
T.303.892.7062

PROJECT LOCATION

STEAMBOAT BASECAMP II

STEAMBOAT BASECAMP, LOT 2
STEAMBOAT SPRINGS, CO 80487

DRAWING TITLE

LEVEL 5 FRAMING PLAN

SEAL

DATE: 11/25/25
DRAWN BY: Author
CHECKED BY: Checker
PROJECT NO:

DRAWING NO: **S0105**

COPYRIGHT 2019

TYPICAL BEARING WALL SCHEDULE, UNO

BEARING LEVEL	STUD SIZE		EXTERIOR WALLS	INTERIOR WALLS	CORRIDOR WALLS
LOFT	2x6	STUD SPACING	16" OC	16" OC	16" OC
		TOP PLATE QUANTITY	(2)	(2)	(2)
LEVEL 5	2x6	STUD SPACING	16" OC	16" OC	12" OC
		TOP PLATE QUANTITY	(2)	(2)	(2)
LEVEL 4	2x6	STUD SPACING	16" OC	16" OC	12" OC
		TOP PLATE QUANTITY	(2)	(2)	(2)
LEVEL 3	2x6	STUD SPACING	16" OC	12" OC	12" OC
		TOP PLATE QUANTITY	(2)	(2)	(2)
LEVEL 2	2x6	STUD SPACING	16" OC	12" OC	12" OC
		TOP PLATE QUANTITY	(2)	(3)	(3)
LEVEL 1	2x6	STUD SPACING	12" OC	12" OC	12" OC
		TOP PLATE QUANTITY	(2)	(3)	(3)

NOTES:
1. USE THE SPACING AND TOP PLATE QUANTITY INDICATED IN THIS TABLE UNLESS NOTED OTHERWISE ON PLAN
2. AT EXTERIOR WALL PROVIDE 1/2" OSB/PLYWOOD WALL SHEATHING, ATTACH W/ 8d@6"OC EDGE, 12"OC FIELD
3. WHERE SHEATHING IS NOT PRESENT ON BOTH SIDES OF WALL, PROVIDE BLOCKING @ 4'-0" OC
4. RE:XXXX FOR EALL TYPES NOTED WAF ON PLAN
5. ALL EXTERIOR WALL FRAMING (STUDS AND SHEATHING) SHALL BE FIRE RESISTANT TREATED WOOD. RE: SPECIFICATIONS. RE: ARCH FOR ALTERNATE NON-COMBUSTIBLE SHEATHING. ALTERNATE SHEATHING TO HAVE SAME NAIL SPACING REQUIRED IN THIS TABLE AND SHEAR WALL SCHEDULE - SCREWS NOT PERMITTED.

PREMANUFACTURED WOOD TRUSS SCHEDULE

MARK	DESCRIPTION	REMARKS
FT	FLOOR TRUSS (COMMON)	NOTES 1, 3, 5
RT	ROOF TRUSS (COMMON)	NOTES 1, 3, 5
GT	GIRDER TRUSS	NOTES 2, 3, 5
SGT	STRUCTURAL GABLE ROOF TRUSS	NOTES 1, 4, 5
MT	MONO PITCH ROOF TRUSS	NOTES 1, 4, 5
DT (#)	DRAG/COLLECTOR TRUSS	NOTES 1, 3, 5

NOTES:
1. MAXIMUM TRUSS SPACING IS 24"OC. ACTUAL SPACING AND TRUSS LAYOUT DETERMINED BY SUPPLIER.
2. GIRDER TRUSS PLY QUANTITY DETERMINED BY TRUSS SUPPLIER.
3. TRUSS-TO-TRUSS CONNECTORS TO BE DESIGNED, SPECIFIED, AND SUPPLIED BY TRUSS SUPPLIER.
4. MONO PITCH ROOF TRUSS DEPTH VARIES. TOP CHORD SLOPES WITH SHEATHING. BOTTOM CHORD FLAT, UNO.
5. TRUSSES DENOTED WITH (X,XXX#) INDICATE DRAG/COLLECTOR TRUSSES TO BE DESIGNED FOR AXIAL COLLECTOR FORCE IN LBS DENOTED IN ( ).

1 S0104 LEVEL 4 FRAMING PLAN

1/8" = 1'-0"

N

WOOD FLOOR FRAMING PLAN NOTES:

1. TYPICAL FLOOR IS ARCHITECTURAL FINISHES OVER 1 1/2" MAX GYPCRETE TOPPING SLAB OVER 3/4" T&G OSB/PLYWOOD FLOOR SHEATHING OVER PREMANUFACTURED WOOD FLOOR TRUSSES. TYPICAL FLOOR SHEATHING ATTACHMENT IS GLUE AND NAIL WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD, UNO.
2. TYPICAL EXTERIOR WALL IS 1/2" OSB/PLYWOOD WALL SHEATHING ON 2x6 DFL No2@SPACING SHOWN IN BEARING WALL SCHEDULE, UNO. ATTACH WALL SHEATHING WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD UNLESS DESIGNATED AS A SHEAR WALL. RE: SHEAR WALL SCHEDULE FOR SHEAR WALL NAILING.
3. TYPICAL INTERIOR STRUCTURAL WALL IS 2x6 DFL No2 @SPACING SHOWN IN BEARING WALL SCHEDULE, UNO.
4. TYPICAL COLUMN IS (3)2x6 DFL No2, UNO.
5. ALL LVL MATERIAL IS 1 3/4" THICK, UNO.
6. RE: "TYPICAL WOOD HEADER TABLE" FOR HEADER SIZING AND NUMBER OF TRIMMER STUDS WHERE INDICATED "HDR" ON PLAN.
7. WHEN NOT SPECIFIED AS "HDR", MINIMUM NUMBER OF KING STUDS EACH SIDE OF OPENING IS EQUAL TO HALF THE NUMBER OF STUDS INTERRUPTED BY HEADER PLUS ONE, (2) MIN. RE: "TYPICAL WOOD HEADER TABLE" FOR ATTACHMENT OF HEADER TO KING STUDS.
8. RE: ARCH FOR WINDOW AND DOOR LOCATIONS.
9. COORDINATE FRAMING LAYOUT WITH LIGHTING LOCATIONS, RE: ARCH.
10. RE: SHEET S0001 FOR GENERAL NOTES AND LEGENDS.
11. RE: SHEET S0011 FOR LOAD KEYS.
12. RE: SHEET S0021 FOR TYPICAL DETAILS.
13. RE: SHEET S0501 FOR SHEAR WALL, HOLDOWN, HANGER, AND BASE PLATE SCHEDULES.

	KEYNOTE LEGEND

THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS ON THE PROJECT TO CLEARLY DEFINE ALL OF THE REQUIREMENTS FOR THE CONSTRUCTION. WHERE CONFLICTS OCCUR CONTACT ARCHITECT FOR CLARIFICATION.

THE STRUCTURAL ENGINEERS SEAL ON THIS DRAWING INDICATES THAT THE INFORMATION SHOWN AND THE CALCULATIONS PERTAINING TO THAT INFORMATION HAVE BEEN PREPARED BY QUALIFIED PEOPLE UNDER THE DIRECTION OF THE ENGINEER-OF-RECORD. THE SEAL DOES NOT IMPLY RESPONSIBILITY FOR INFORMATION PREPARED BY OTHERS NOR FOR ANY INFORMATION NOT SHOWN ON THIS DRAWING AND SUCH RESPONSIBILITY IS SPECIFICALLY DISCLAIMED. ON PHASED PROJECTS, DRAWINGS THAT ARE ISSUED BUT NOT SCALED SHALL BE CONSIDERED TO BE PRELIMINARY IN NATURE AND ARE ISSUED FOR INFORMATION ONLY.

Mon 02/23/2026 11:57:24 AM

APPROVAL STAMPS:

No.	Date	Description

SUBMISSIONS & REVISIONS

OWNER

MAY REIGLER PROPERTIES
2201 Wisconsin Ave NW Suite 200
Washington, DC 20007
www.mayriegler.com

ARCHITECT

KEVIN & ASAKO SPERRY ARCHITECTURE
3318 N. Columbus Street
Arlington, VA 22207
T.312.636.3248 / 312.636.4252
www.kasa-arch.com

GENERAL CONTRACTOR

DENEUVE CONSTRUCTION
2344 Spruce Street
Boulder, CO 80302
T: 303.444.6633

CIVIL ENGINEER

LANDMARK ENGINEERING
141 9th Street, PO Box 774943
Steamboat Springs, CO 80477
T.970.871.9494

LANDSCAPE ARCHITECT

STRUCTURAL ENGINEER

KL&A ENGINEERS & BUILDERS
1717 Washington Ave.
Golden, CO 80401
T. 303.384.9910
© 2022 KL&A, INC
M.E.P. & F.P. ENGINEERS

BOULDER ENGINEERING
1717 15th Street
Boulder, CO 80302
T. 303.444.6038

INTERIOR DESIGNER:

JOHNSON NATHAN STROHE
1600 Wynkoop St., Suite 100
Denver, CO 80202
T.303.892.7062

PROJECT LOCATION

STEAMBOAT BASECAMP II

STEAMBOAT BASECAMP, LOT 2
STEAMBOAT SPRINGS, CO 80487

DRAWING TITLE

LEVEL 4 FRAMING PLAN

SEAL

DATE: 11/25/25
DRAWN BY: Author
CHECKED BY: Checker
PROJECT NO:

DRAWING NO:

S0104

COPYRIGHT 2019

TYPICAL BEARING WALL SCHEDULE, UNO

BEARING LEVEL	STUD SIZE		EXTERIOR WALLS	INTERIOR WALLS	CORRIDOR WALLS
LOFT	2x6	STUD SPACING	16" OC	16" OC	16" OC
		TOP PLATE QUANTITY	(2)	(2)	(2)
LEVEL 5	2x6	STUD SPACING	16" OC	16" OC	12" OC
		TOP PLATE QUANTITY	(2)	(2)	(2)
LEVEL 4	2x6	STUD SPACING	16" OC	16" OC	12" OC
		TOP PLATE QUANTITY	(2)	(2)	(2)
LEVEL 3	2x6	STUD SPACING	16" OC	12" OC	12" OC
		TOP PLATE QUANTITY	(2)	(2)	(2)
LEVEL 2	2x6	STUD SPACING	16" OC	12" OC	12" OC
		TOP PLATE QUANTITY	(2)	(3)	(3)
LEVEL 1	2x6	STUD SPACING	12" OC	12" OC	12" OC
		TOP PLATE QUANTITY	(2)	(3)	(3)

NOTES:
1. USE THE SPACING AND TOP PLATE QUANTITY INDICATED IN THIS TABLE UNLESS NOTED OTHERWISE ON PLAN
2. AT EXTERIOR WALL PROVIDE 1/2" OSB/PLYWOOD WALL SHEATHING, ATTACH W/ 8d@6"OC EDGE, 12"OC FIELD
3. WHERE SHEATHING IS NOT PRESENT ON BOTH SIDES OF WALL, PROVIDE BLOCKING @ 4'-0" OC
4. RE:XXXX FOR EALL TYPES NOTED WAF ON PLAN
5. ALL EXTERIOR WALL FRAMING (STUDS AND SHEATHING) SHALL BE FIRE RESISTANT TREATED WOOD. RE: SPECIFICATIONS. RE: ARCH FOR ALTERNATE NON-COMBUSTIBLE SHEATHING. ALTERNATE SHEATHING TO HAVE SAME NAIL SPACING REQUIRED IN THIS TABLE AND SHEAR WALL SCHEDULE - SCREWS NOT PERMITTED.

PREMANUFACTURED WOOD TRUSS SCHEDULE

MARK	DESCRIPTION	REMARKS
FT	FLOOR TRUSS (COMMON)	NOTES 1, 3, 5
RT	ROOF TRUSS (COMMON)	NOTES 1, 3, 5
GT	GIRDER TRUSS	NOTES 2, 3, 5
SGT	STRUCTURAL GABLE ROOF TRUSS	NOTES 1, 4, 5
MT	MONO PITCH ROOF TRUSS	NOTES 1, 4, 5
DT (#)	DRAG/COLLECTOR TRUSS	NOTES 1, 3, 5

NOTES:
1. MAXIMUM TRUSS SPACING IS 24"OC. ACTUAL SPACING AND TRUSS LAYOUT DETERMINED BY SUPPLIER.
2. GIRDER TRUSS PLY QUANTITY DETERMINED BY TRUSS SUPPLIER.
3. TRUSS-TO-TRUSS CONNECTORS TO BE DESIGNED, SPECIFIED, AND SUPPLIED BY TRUSS SUPPLIER.
4. MONO PITCH ROOF TRUSS DEPTH VARIES. TOP CHORD SLOPES WITH SHEATHING, BOTTOM CHORD FLAT, UNO.
5. TRUSSES DENOTED WITH (X,XXX#) INDICATE DRAG/COLLECTOR TRUSSES TO BE DESIGNED FOR AXIAL COLLECTOR FORCE IN LBS DENOTED IN ( ).

1 S0103 LEVEL 3 FRAMING PLAN

1/8" = 1'-0"

WOOD FLOOR FRAMING PLAN NOTES:

1. TYPICAL FLOOR IS ARCHITECTURAL FINISHES OVER 1 1/2" MAX GYPCRETE TOPPING SLAB OVER 3/4" T&G OSB/PLYWOOD FLOOR SHEATHING OVER PREMANUFACTURED WOOD FLOOR TRUSSES. TYPICAL FLOOR SHEATHING ATTACHMENT IS GLUE AND NAIL WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD, UNO.
2. TYPICAL EXTERIOR WALL IS 1/2" OSB/PLYWOOD WALL SHEATHING ON 2x6 DFL No2@SPACING SHOWN IN BEARING WALL SCHEDULE, UNO. ATTACH WALL SHEATHING WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD UNLESS DESIGNATED AS A SHEAR WALL. RE: SHEAR WALL SCHEDULE FOR SHEAR WALL NAILING.
3. TYPICAL INTERIOR STRUCTURAL WALL IS 2x6 DFL No2 @SPACING SHOWN IN BEARING WALL SCHEDULE, UNO.
4. TYPICAL COLUMN IS (3)2x6 DFL No2, UNO.
5. ALL LVL MATERIAL IS 1 3/4" THICK, UNO.
6. RE: "TYPICAL WOOD HEADER TABLE" FOR HEADER SIZING AND NUMBER OF TRIMMER STUDS WHERE INDICATED "HDR" ON PLAN.
7. WHEN NOT SPECIFIED AS "HDR", MINIMUM NUMBER OF KING STUDS EACH SIDE OF OPENING IS EQUAL TO HALF THE NUMBER OF STUDS INTERRUPTED BY HEADER PLUS ONE, (2) MIN. RE: "TYPICAL WOOD HEADER TABLE" FOR ATTACHMENT OF HEADER TO KING STUDS.
8. RE: ARCH FOR WINDOW AND DOOR LOCATIONS.
9. COORDINATE FRAMING LAYOUT WITH LIGHTING LOCATIONS, RE: ARCH.
10. RE: SHEET S0001 FOR GENERAL NOTES AND LEGENDS.
11. RE: SHEET S0011 FOR LOAD KEYS.
12. RE: SHEET S0021 FOR TYPICAL DETAILS.
13. RE: SHEET S0501 FOR SHEAR WALL, HOLDOWN, HANGER, AND BASE PLATE SCHEDULES.

	KEYNOTE LEGEND

THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS ON THE PROJECT TO CLEARLY DEFINE ALL OF THE REQUIREMENTS FOR THE CONSTRUCTION. WHERE CONFLICTS OCCUR CONTACT ARCHITECT FOR CLARIFICATION.

THE STRUCTURAL ENGINEERS SEAL ON THIS DRAWING INDICATES THAT THE INFORMATION SHOWN AND THE CALCULATIONS PERTAINING TO THAT INFORMATION HAVE BEEN PREPARED BY QUALIFIED PEOPLE UNDER THE DIRECTION OF THE ENGINEER-OF-RECORD. THE SEAL DOES NOT IMPLY RESPONSIBILITY FOR INFORMATION PREPARED BY OTHERS NOR FOR ANY INFORMATION NOT SHOWN ON THIS DRAWING. RESPONSIBILITY IS SPECIFICALLY DISCLAIMED. ON PHASED PROJECTS, DRAWINGS THAT ARE ISSUED BUT NOT SCALED SHALL BE CONSIDERED TO BE PRELIMINARY IN NATURE AND ARE ISSUED FOR INFORMATION ONLY.

Mon 02/23/2026 11:57:20 AM

APPROVAL STAMPS:

No.	Date	Description

SUBMISSIONS & REVISIONS

OWNER

MAY REIGLER PROPERTIES
2201 Wisconsin Ave NW Suite 200
Washington, DC 20007
www.mayriegler.com

ARCHITECT

KEVIN & ASAKO SPERRY ARCHITECTURE
3318 N. Columbus Street
Arlington, VA 22207
T.312.636.3248 / 312.636.4252
www.kasa-arch.com

GENERAL CONTRACTOR

DENEUVE CONSTRUCTION
2344 Spruce Street
Boulder, CO 80302
T: 303.444.6633

CIVIL ENGINEER

LANDMARK ENGINEERING
141 9th Street, PO Box 774943
Steamboat Springs, CO 80477
T.970.871.9494

LANDSCAPE ARCHITECT

STRUCTURAL ENGINEER

KL&A ENGINEERS & BUILDERS
1717 Washington Ave.
Golden, CO 80401
T. 303.384.9910

© 2022 KL&A, INC

M.E.P. & F.P. ENGINEERS

BOULDER ENGINEERING
1717 15th Street
Boulder, CO 80302
T. 303.444.6038

INTERIOR DESIGNER:

JOHNSON NATHAN STROHE
1600 Wynkoop St., Suite 100
Denver, CO 80202
T.303.892.7062

PROJECT LOCATION

STEAMBOAT BASECAMP II

STEAMBOAT BASECAMP, LOT 2
STEAMBOAT SPRINGS, CO 80487

DRAWING TITLE

LEVEL 3 FRAMING PLAN

SEAL	DATE: 11/25/25
	DRAWN BY: Author
	CHECKED BY: Checker
	PROJECT NO:

DRAWING NO:

S0103

COPYRIGHT 2019

TYPICAL BEARING WALL SCHEDULE, UNO

BEARING LEVEL	STUD SIZE		EXTERIOR WALLS	INTERIOR WALLS	CORRIDOR WALLS
LOFT	2x6	STUD SPACING	16" OC	16" OC	16" OC
		TOP PLATE QUANTITY	(2)	(2)	(2)
LEVEL 5	2x6	STUD SPACING	16" OC	16" OC	12" OC
		TOP PLATE QUANTITY	(2)	(2)	(2)
LEVEL 4	2x6	STUD SPACING	16" OC	16" OC	12" OC
		TOP PLATE QUANTITY	(2)	(2)	(2)
LEVEL 3	2x6	STUD SPACING	16" OC	12" OC	12" OC
		TOP PLATE QUANTITY	(2)	(2)	(2)
LEVEL 2	2x6	STUD SPACING	16" OC	12" OC	12" OC
		TOP PLATE QUANTITY	(2)	(3)	(3)
LEVEL 1	2x6	STUD SPACING	12" OC	12" OC	12" OC
		TOP PLATE QUANTITY	(2)	(3)	(3)

NOTES:
1. USE THE SPACING AND TOP PLATE QUANTITY INDICATED IN THIS TABLE UNLESS NOTED OTHERWISE ON PLAN
2. AT EXTERIOR WALL PROVIDE 1/2" OSB/PLYWOOD WALL SHEATHING, ATTACH W/ 8d@6"OC EDGE, 12"OC FIELD
3. WHERE SHEATHING IS NOT PRESENT ON BOTH SIDES OF WALL, PROVIDE BLOCKING @ 4'-0" OC
4. RE:XXXX FOR EALL TYPES NOTED WAF ON PLAN
5. ALL EXTERIOR WALL FRAMING (STUDS AND SHEATHING) SHALL BE FIRE RESISTANT TREATED WOOD. RE: SPECIFICATIONS. RE: ARCH FOR ALTERNATE NON-COMBUSTIBLE SHEATHING. ALTERNATE SHEATHING TO HAVE SAME NAIL SPACING REQUIRED IN THIS TABLE AND SHEAR WALL SCHEDULE - SCREWS NOT PERMITTED.

PREMANUFACTURED WOOD TRUSS SCHEDULE

MARK	DESCRIPTION	REMARKS
FT	FLOOR TRUSS (COMMON)	NOTES 1, 3, 5
RT	ROOF TRUSS (COMMON)	NOTES 1, 3, 5
GT	GIRDER TRUSS	NOTES 2, 3, 5
SGT	STRUCTURAL GABLE ROOF TRUSS	NOTES 1, 4, 5
MT	MONO PITCH ROOF TRUSS	NOTES 1, 4, 5
DT (#)	DRAG/COLLECTOR TRUSS	NOTES 1, 3, 5

NOTES:
1. MAXIMUM TRUSS SPACING IS 24"OC. ACTUAL SPACING AND TRUSS LAYOUT DETERMINED BY SUPPLIER.
2. GIRDER TRUSS PLY QUANTITY DETERMINED BY TRUSS SUPPLIER.
3. TRUSS-TO-TRUSS CONNECTORS TO BE DESIGNED, SPECIFIED, AND SUPPLIED BY TRUSS SUPPLIER.
4. MONO PITCH ROOF TRUSS DEPTH VARIES. TOP CHORD SLOPES WITH SHEATHING. BOTTOM CHORD FLAT, UNO.
5. TRUSSES DENOTED WITH (X,XXX#) INDICATE DRAG/COLLECTOR TRUSSES TO BE DESIGNED FOR AXIAL COLLECTOR FORCE IN LBS DENOTED IN ( ).

1 S0102 LEVEL 2 FRAMING PLAN

1/8" = 1'-0"

N

WOOD FLOOR FRAMING PLAN NOTES:

1. TYPICAL FLOOR IS ARCHITECTURAL FINISHES OVER 1 1/2" MAX GYPCRETE TOPPING SLAB OVER 3/4" T&G OSB/PLYWOOD FLOOR SHEATHING OVER PREMANUFACTURED WOOD FLOOR TRUSSES. TYPICAL FLOOR SHEATHING ATTACHMENT IS GLUE AND NAIL WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD, UNO.
2. TYPICAL EXTERIOR WALL IS 1/2" OSB/PLYWOOD WALL SHEATHING ON 2x6 DFL No2@SPACING SHOWN IN BEARING WALL SCHEDULE, UNO. ATTACH WALL SHEATHING WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD UNLESS DESIGNATED AS A SHEAR WALL. RE: SHEAR WALL SCHEDULE FOR SHEAR WALL NAILING.
3. TYPICAL INTERIOR STRUCTURAL WALL IS 2x6 DFL No2 @SPACING SHOWN IN BEARING WALL SCHEDULE, UNO.
4. TYPICAL COLUMN IS (3)2x6 DFL No2, UNO.
5. ALL LVL MATERIAL IS 1 3/4" THICK, UNO.
6. RE: "TYPICAL WOOD HEADER TABLE" FOR HEADER SIZING AND NUMBER OF TRIMMER STUDS WHERE INDICATED "HDR" ON PLAN.
7. WHEN NOT SPECIFIED AS "HDR", MINIMUM NUMBER OF KING STUDS EACH SIDE OF OPENING IS EQUAL TO HALF THE NUMBER OF STUDS INTERRUPTED BY HEADER PLUS ONE, (2) MIN. RE: "TYPICAL WOOD HEADER TABLE" FOR ATTACHMENT OF HEADER TO KING STUDS.
8. RE: ARCH FOR WINDOW AND DOOR LOCATIONS.
9. COORDINATE FRAMING LAYOUT WITH LIGHTING LOCATIONS, RE: ARCH.
10. RE: SHEET S0001 FOR GENERAL NOTES AND LEGENDS.
11. RE: SHEET S0011 FOR LOAD KEYS.
12. RE: SHEET S0021 FOR TYPICAL DETAILS.
13. RE: SHEET S0501 FOR SHEAR WALL, HOLDOWN, HANGER, AND BASE PLATE SCHEDULES.

	KEYNOTE LEGEND

THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS ON THE PROJECT TO CLEARLY DEFINE ALL OF THE REQUIREMENTS FOR THE CONSTRUCTION. WHERE CONFLICTS OCCUR CONTACT ARCHITECT FOR CLARIFICATION.

THE STRUCTURAL ENGINEERS SEAL ON THIS DRAWING INDICATES THAT THE INFORMATION SHOWN AND THE CALCULATIONS PERTAINING TO THAT INFORMATION HAVE BEEN PREPARED BY QUALIFIED PEOPLE UNDER THE DIRECTION OF THE ENGINEER-OF-RECORD. THE SEAL DOES NOT IMPLY RESPONSIBILITY FOR INFORMATION PREPARED BY OTHERS NOR FOR ANY INFORMATION NOT SHOWN ON THIS DRAWING AND SUCH RESPONSIBILITY IS SPECIFICALLY DISCLAIMED. ON PHASED PROJECTS, DRAWINGS THAT ARE ISSUED BUT NOT SCALED SHALL BE CONSIDERED TO BE PRELIMINARY IN NATURE AND ARE ISSUED FOR INFORMATION ONLY.

Mon 02/23/2026 11:57:14 AM

APPROVAL STAMPS:

No.	Date	Description

SUBMISSIONS & REVISIONS

OWNER

MAY REIGLER PROPERTIES
2201 Wisconsin Ave NW Suite 200
Washington, DC 20007
www.mayriegler.com

ARCHITECT

KASA

KEVIN & ASAKO SPERRY ARCHITECTURE
3318 N. Columbus Street
Arlington, VA 22207
T.312.636.3248 / 312.636.4252
www.kasa-arch.com

GENERAL CONTRACTOR

DENEUVE CONSTRUCTION
2344 Spruce Street
Boulder, CO 80302
T: 303.444.6633

CIVIL ENGINEER

LANDMARK ENGINEERING
141 9th Street, PO Box 774943
Steamboat Springs, CO 80477
T.970.871.9494

LANDSCAPE ARCHITECT

STRUCTURAL ENGINEER

KL&A ENGINEERS & BUILDERS
1717 Washington Ave.
Golden, CO 80401
T. 303.384.9910

© 2022 KL&A, INC

M.E.P. & F.P. ENGINEERS

BOULDER ENGINEERING
1717 15th Street
Boulder, CO 80302
T. 303.444.6038

INTERIOR DESIGNER:

JOHNSON NATHAN STROHE
1600 Wynkoop St., Suite 100
Denver, CO 80202
T.303.892.7062

PROJECT LOCATION

STEAMBOAT BASECAMP II

STEAMBOAT BASECAMP, LOT 2
STEAMBOAT SPRINGS, CO 80487

DRAWING TITLE

LEVEL 2 FRAMING PLAN

SEAL

DATE: 11/25/25
DRAWN BY: Author
CHECKED BY: Checker
PROJECT NO:

DRAWING NO: **S0102**

COPYRIGHT 2019

KL&A Engineers & Builders

Title	Basecamp Phase II	Date	3 5 26	Job No.	25336
Subject	Story Force Summary	By	APS/CGC	Sheet	

Lateral Load Distribution

Unfactored Forces To Shear Wall Lines

Grid	Level											
	HR		MR		L5		L4		L3		L2	
	WL [lbs]	EL [lbs]	WL [lbs]	EL [lbs]	WL [lbs]	EL [lbs]	WL [lbs]	EL [lbs]	WL [lbs]	EL [lbs]	WL [lbs]	EL [lbs]
1	769.8	1095.1	1129.2	624.5	1076.9	870.5	963.9	637.5	890.0	422.8	813.0	206.9
2	2432.0	2508.5	3695.4	3017.6	3891.2	3143.9	3482.8	2302.4	3215.7	1526.8	2937.7	747.2
4	2651.7	2734.9	4285.0	3409.3	4210.1	3405.6	3768.2	2494.1	3479.2	1653.9	3178.4	809.4
5	1666.7	1719.8	2990.7	2122.9	2852.3	2309.1	2552.9	1691.1	2357.1	1121.4	2153.3	548.8
6	2743.6	2828.6	2957.9	3887.7	3720.9	3869.0	3330.4	2833.4	3075.0	1878.9	2809.2	1024.8
7	560.0	343.6	2243.4	3790.7	3244.8	5084.1	2904.3	3723.3	2681.5	2469.0	2449.7	1239.9
8	5529.4	5979.3	1495.5	4588.4	3433.6	4619.5	3073.2	3383.1	2837.5	2243.4	2592.2	1120.7
8'	1700.0	4435.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	2735.1	3680.0	2448.1	2695.0	2260.3	1787.2	2064.9	883.1
9'	1700.0	4435.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Canopy	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	97.7
A	1778.8	1682.7	1424.7	1334.4	2295.6	1747.6	2034.5	1279.8	1901.4	848.7	1769.1	598.8
B.2	2922.2	2303.5	2351.7	2241.7	3789.4	2904.6	3358.3	2127.1	3138.6	1410.6	2920.3	733.1
B.7	1914.8	1509.0	1551.5	2004.8	2500.0	2247.6	2215.6	1646.0	2070.7	1091.5	1926.6	571.5
C.3	1651.6	1300.1	1336.5	3396.2	2153.5	2865.0	1908.5	2098.2	1783.7	1391.4	1659.6	681.3
C.6	2322.7	2075.1	1769.7	4724.1	2851.7	4443.0	2527.2	3253.8	2361.9	2157.7	2197.6	1056.5
C.6'	520.0	343.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	0.0	0.0	1056.4	2450.1	1702.3	2594.6	1508.6	1900.1	1409.9	1260.0	1311.9	617.0
F	2000.0	8497.5	2118.3	5289.7	3625.5	5569.3	3213.0	4078.7	3002.9	2704.7	2794.0	1324.3
G	2000.0	8372.6	0.0	0.0	2959.5	4610.1	2622.8	3376.2	2451.3	2238.8	2280.8	1096.2

Lateral Force Distribution To Shear Wall Piers

Grid Line	Floor Level	Pier Stack #	Shear Wall Mark	Wall Pier Length [ft]	Length Ratio	Allowable Wind Demand (0.6 WL)		Allowable Seismic Demand (0.7 EL)			
						Level [lbs]	Cumulative [lbs]	Level [lbs]	Cumulative [lbs]		
1	HR	1	1(1)_HR	10.00	1.000	461.9	461.9	766.6	766.6		
1	MR	1	1(1)_MR	10.00	0.500	338.8	569.7	218.6	601.9		
1	MR	2	1(2)_MR	10.00	0.500	338.8	569.7	218.6	601.9		
1	L5	1	1(1)_L5	10.00	0.500	323.1	892.8	304.7	906.5		
1	L5	2	1(2)_L5	10.00	0.500	323.1	892.8	304.7	906.5		
1	L4	1	1(1)_L4	10.00	0.500	289.2	1181.9	223.1	1129.7		
1	L4	2	1(2)_L4	10.00	0.500	289.2	1181.9	223.1	1129.7		
1	L3	1	1(1)_L3	10.00	0.500	267.0	1448.9	148.0	1277.7		
1	L3	2	1(2)_L3	10.00	0.500	267.0	1448.9	148.0	1277.7		
1	L2	1	1(1)_L2	10.00	0.500	243.9	1692.8	72.4	1350.1	ΣWL	ΣEL
1	L2	2	1(2)_L2	10.00	0.500	243.9	1692.8	72.4	1350.1	3385.7	2700.1
2	HR	1	2(1)_HR	8.50	1.000	1459.2	1459.2	1755.9	1755.9		
2	MR	1	2(1)_MR	8.50	0.459	1018.7	1689.2	970.5	1777.3		
2	MR	2	2(2)_MR	10.00	0.541	1198.5	1987.3	1141.8	2090.9		
2	L5	1	2(1)_L5	8.50	0.459	1072.7	2761.9	1011.2	2788.4		
2	L5	2	2(2)_L5	10.00	0.541	1262.0	3249.3	1189.6	3280.5		
2	L4	1	2(1)_L4	8.50	0.459	960.1	3722.0	740.5	3529.0		
2	L4	2	2(2)_L4	10.00	0.541	1129.6	4378.9	871.2	4151.7		
2	L3	1	2(1)_L3	8.50	0.459	886.5	4608.5	491.1	4020.0		
2	L3	2	2(2)_L3	10.00	0.541	1042.9	5421.8	577.7	4729.4		
2	L2	1	2(1)_L2	8.50	0.459	809.9	5418.4	240.3	4260.3	ΣWL	ΣEL
2	L2	2	2(2)_L2	10.00	0.541	952.8	6374.6	282.7	5012.1	11792.9	9272.5
4	HR	1	4(1)_HR	12.00	1.000	1591.0	1591.0	1914.4	1914.4		
4	MR	1	4(1)_MR	12.00	0.545	1402.4	2270.2	1301.7	2346.0		
4	MR	2	4(2)_MR	10.00	0.455	1168.6	1891.8	1084.8	1955.0		
4	L5	1	4(1)_L5	12.00	0.545	1377.8	3648.0	1300.3	3646.3		
4	L5	2	4(2)_L5	10.00	0.455	1148.2	3040.0	1083.6	3038.6		
4	L4	1	4(1)_L4	12.00	0.545	1233.2	4881.3	952.3	4598.6		
4	L4	2	4(2)_L4	10.00	0.455	1027.7	4067.7	793.6	3832.1		
4	L3	1	4(1)_L3	12.00	0.545	1138.6	6019.9	631.5	5230.1		
4	L3	2	4(2)_L3	10.00	0.455	948.9	5016.6	526.2	4358.4		
4	L2	1	4(1)_L2	12.00	0.545	1040.2	7060.1	309.0	5539.1	ΣWL	ΣEL
4	L2	2	4(2)_L2	10.00	0.455	866.8	5883.4	257.5	4615.9	12943.5	10155.0
5	HR	1	5(1)_HR	12.00	1.000	1000.0	1000.0	1203.9	1203.9		
5	MR	1	5(1)_MR	12.00	0.545	978.8	1524.2	810.6	1467.2		
5	MR	2	5(2)_MR	10.00	0.455	815.6	1270.2	675.5	1222.7		
5	L5	1	5(1)_L5	12.00	0.545	933.5	2457.7	881.7	2348.9		
5	L5	2	5(2)_L5	10.00	0.455	777.9	2048.1	734.7	1957.4		
5	L4	1	5(1)_L4	12.00	0.545	835.5	3293.2	645.7	2994.6		
5	L4	2	5(2)_L4	10.00	0.455	696.2	2744.3	538.1	2495.5		
5	L3	1	5(1)_L3	12.00	0.545	771.4	4064.6	428.2	3422.7		
5	L3	2	5(2)_L3	10.00	0.455	642.8	3387.2	356.8	2852.3		
5	L2	1	5(1)_L2	12.00	0.545	704.7	4769.3	209.5	3632.3	ΣWL	ΣEL
5	L2	2	5(2)_L2	10.00	0.455	587.3	3974.4	174.6	3026.9	8743.8	6659.2
6	HR	1	6(1)_HR	12.00	1.000	1646.2	1646.2	1980.0	1980.0		
6	MR	1	6(1)_MR	12.00	0.434	769.8	1483.8	1180.4	2039.2		
6	MR	2	6(2)_MR	7.00	0.253	449.0	865.5	688.5	1189.5		
6	MR	3	6(3)_MR	8.67	0.313	556.0	1071.6	852.5	1472.7		
6	L5	1	6(1)_L5	12.00	0.434	968.3	2452.1	1174.7	3213.8		
6	L5	2	6(2)_L5	7.00	0.253	564.9	1430.4	685.2	1874.7		
6	L5	3	6(3)_L5	8.67	0.313	699.4	1771.0	848.4	2321.1		
6	L4	1	6(1)_L4	12.00	0.434	866.7	3318.8	860.3	4074.1		
6	L4	2	6(2)_L4	7.00	0.253	505.6	1936.0	501.8	2376.6		
6	L4	3	6(3)_L4	8.67	0.313	626.0	2396.9	621.3	2942.4		
6	L3	1	6(1)_L3	12.00	0.434	800.2	4119.1	570.5	4644.6		
6	L3	2	6(2)_L3	7.00	0.253	466.8	2402.8	332.8	2709.3		
6	L3	3	6(3)_L3	8.67	0.313	577.9	2974.9	412.0	3354.4		
6	L2	1	6(1)_L2	12.00	0.434	731.1	4850.1	311.1	4955.7		
6	L2	2	6(2)_L2	7.00	0.253	426.5	2829.2	181.5	2890.8	ΣWL	ΣEL
6	L2	3	6(3)_L2	8.67	0.313	528.0	3502.9	224.7	3579.1	11182.2	11425.6

Lateral Force Distribution To Shear Wall Piers

Grid Line	Floor Level	Pier Stack #	Shear Wall Mark	Wall Pier Length [ft]	Length Ratio	Allowable Wind Demand (0.6 WL)		Allowable Seismic Demand (0.7 EL)			
						Level [lbs]	Cumulative [lbs]	Level [lbs]	Cumulative [lbs]		
7	HR	1	7(1)_HR	8.83	1.000	336.0	336.0	240.5	240.5		
7	MR	1	7(1)_MR	8.83	0.291	392.0	489.8	772.7	842.8		
7	MR	2	7(2)_MR	12.00	0.396	532.5	665.4	1049.7	1144.9		
7	MR	3	7(3)_MR	9.50	0.313	421.6	526.8	831.0	906.4		
7	L5	1	7(1)_L5	8.83	0.291	567.0	1056.8	1036.4	1879.1		
7	L5	2	7(2)_L5	12.00	0.396	770.2	1435.6	1407.9	2552.8		
7	L5	3	7(3)_L5	9.50	0.313	609.7	1136.5	1114.6	2021.0		
7	L4	1	7(1)_L4	8.83	0.291	507.5	1564.2	759.0	2638.1		
7	L4	2	7(2)_L4	12.00	0.396	689.4	2125.0	1031.1	3583.9		
7	L4	3	7(3)_L4	9.50	0.313	545.8	1682.3	816.3	2837.2		
7	L3	1	7(1)_L3	8.83	0.291	468.5	2032.8	503.3	3141.4		
7	L3	2	7(2)_L3	12.00	0.396	636.5	2761.5	683.7	4267.6		
7	L3	3	7(3)_L3	9.50	0.313	503.9	2186.2	541.3	3378.5		
7	L2	1	7(1)_L2	8.83	0.291	428.0	2460.8	252.7	3394.2		
7	L2	2	7(2)_L2	12.00	0.396	581.5	3343.0	343.4	4611.0	ΣWL	ΣEL
7	L2	3	7(3)_L2	9.50	0.313	460.3	2646.5	271.8	3650.3	8450.3	11655.5
8	HR	1	8(1)_HR	12.00	1.000	3317.6	3317.6	4185.5	4185.5		
8'	HR	2	8(2)_HR	12.00	0.308	313.8	313.8	955.3	955.3		
8'	HR	3	8(3)_HR	18.00	0.462	470.8	470.8	1432.9	1432.9		
8'	HR	4	8(4)_HR	9.00	0.231	235.4	235.4	716.5	716.5		
8	MR	1	8(1)_MR	12.00	0.235	211.1	1231.7	755.7	2471.1		
8	MR	2	8(2)_MR	12.00	0.235	211.1	1231.7	755.7	2471.1		
8	MR	3	8(3)_MR	18.00	0.353	316.7	1847.6	1133.6	3706.6		
8	MR	4	8(4)_MR	9.00	0.176	158.3	923.8	566.8	1853.3		
8	L5	1	8(1)_L5	12.00	0.235	484.7	1716.5	760.9	3231.9		
8	L5	2	8(2)_L5	12.00	0.235	484.7	1716.5	760.9	3231.9		
8	L5	3	8(3)_L5	18.00	0.353	727.1	2574.7	1141.3	4847.9		
8	L5	4	8(4)_L5	9.00	0.176	363.6	1287.4	570.6	2423.9		
8	L4	1	8(1)_L4	12.00	0.235	433.9	2150.3	557.2	3789.1		
8	L4	2	8(2)_L4	12.00	0.235	433.9	2150.3	557.2	3789.1		
8	L4	3	8(3)_L4	18.00	0.353	650.8	3225.5	835.8	5683.7		
8	L4	4	8(4)_L4	9.00	0.176	325.4	1612.8	417.9	2841.9		
8	L3	1	8(1)_L3	12.00	0.235	400.6	2550.9	369.5	4158.6		
8	L3	2	8(2)_L3	12.00	0.235	400.6	2550.9	369.5	4158.6		
8	L3	3	8(3)_L3	18.00	0.353	600.9	3826.4	554.3	6238.0		
8	L3	4	8(4)_L3	9.00	0.176	300.4	1913.2	277.1	3119.0		
8	L2	1	8(1)_L2	12.00	0.235	366.0	2916.9	184.6	4343.2		
8	L2	2	8(2)_L2	12.00	0.235	366.0	2916.9	184.6	4343.2		
8	L2	3	8(3)_L2	18.00	0.353	548.9	4375.3	276.9	6514.8	ΣWL	ΣEL
8	L2	4	8(4)_L2	9.00	0.176	274.5	2187.7	138.4	3257.4	12396.8	18458.7

Lateral Force Distribution To Shear Wall Piers

Grid Line	Floor Level	Pier Stack #	Shear Wall Mark	Wall Pier Length [ft]	Length Ratio	Allowable Wind Demand (0.6 WL)		Allowable Seismic Demand (0.7 EL)			
						Level [lbs]	Cumulative [lbs]	Level [lbs]	Cumulative [lbs]		
9	HR	1	9(1)_HR	6.00	0.250	0.0	0.0	0.0	0.0		
9'	HR	2	9(2)_HR	6.00	0.250	255.0	255.0	776.2	776.2		
9'	HR	3	9(3)_HR	6.00	0.250	255.0	255.0	776.2	776.2		
9'	HR	4	9(4)_HR	6.00	0.250	255.0	255.0	776.2	776.2		
9	MR	1	9(1)_MR	6.00	1.000	0.0	765.0	0.0	2328.5		
9	L5	1	9(1)_L5	6.00	0.250	410.3	601.5	644.0	1226.1		
9	L5	2	9(2)_L5	6.00	0.250	410.3	601.5	644.0	1226.1		
9	L5	3	9(3)_L5	6.00	0.250	410.3	601.5	644.0	1226.1		
9	L5	4	9(4)_L5	6.00	0.250	410.3	601.5	644.0	1226.1		
9	L4	1	9(1)_L4	6.00	0.250	367.2	968.7	471.6	1697.8		
9	L4	2	9(2)_L4	6.00	0.250	367.2	968.7	471.6	1697.8		
9	L4	3	9(3)_L4	6.00	0.250	367.2	968.7	471.6	1697.8		
9	L4	4	9(4)_L4	6.00	0.250	367.2	968.7	471.6	1697.8		
9	L3	1	9(1)_L3	6.00	0.250	339.0	1307.8	312.8	2010.5		
9	L3	2	9(2)_L3	6.00	0.250	339.0	1307.8	312.8	2010.5		
9	L3	3	9(3)_L3	6.00	0.250	339.0	1307.8	312.8	2010.5		
9	L3	4	9(4)_L3	6.00	0.250	339.0	1307.8	312.8	2010.5		
9	L2	1	9(1)_L2	6.00	0.250	309.7	1617.5	154.5	2165.1		
9	L2	2	9(2)_L2	6.00	0.250	309.7	1617.5	154.5	2165.1		
9	L2	3	9(3)_L2	6.00	0.250	309.7	1617.5	154.5	2165.1	ΣWL	ΣEL
9	L2	4	9(4)_L2	6.00	0.250	309.7	1617.5	154.5	2165.1	6470.1	8660.2

Lateral Force Distribution To Shear Wall Piers

Grid Line	Floor Level	Pier Stack #	Shear Wall Mark	Wall Pier Length [ft]	Length Ratio	Allowable Wind Demand (0.6 WL)		Allowable Seismic Demand (0.7 EL)			
						Level [lbs]	Cumulative [lbs]	Level [lbs]	Cumulative [lbs]		
A	HR	2	A(2)_HR	7.25	1.000	1067.3	1067.3	1177.9	1177.9		
A	MR	1	A(1)_MR	6.50	0.473	404.1	404.1	441.6	441.6		
A	MR	2	A(2)_MR	7.25	0.527	450.7	1013.5	492.5	1113.6		
A	L5	1	A(1)_L5	6.50	0.473	651.1	1559.7	578.3	1576.7		
A	L5	2	A(2)_L5	7.25	0.527	726.3	1739.7	645.0	1758.6		
A	L4	1	A(1)_L4	6.50	0.473	577.0	2136.8	423.5	2000.2		
A	L4	2	A(2)_L4	7.25	0.527	643.6	2383.3	472.4	2231.0		
A	L3	1	A(1)_L3	6.50	0.473	539.3	2676.1	280.8	2281.0		
A	L3	2	A(2)_L3	7.25	0.527	601.5	2984.9	313.2	2544.2		
A	L2	1	A(1)_L2	6.50	0.473	501.8	3177.9	198.1	2479.2	ΣWL	ΣEL
A	L2	2	A(2)_L2	7.25	0.527	559.7	3544.6	221.0	2765.2	6722.4	5244.4
B.2	HR	1	B.2(1)_HR	16.00	1.000	1753.3	1753.3	1612.4	1612.4		
B.2	MR	1	B.2(1)_MR	16.00	1.000	1411.0	3164.4	1569.2	3181.6		
B.2	L5	1	B.2(1)_L5	16.00	1.000	2273.6	5438.0	2033.2	5214.8		
B.2	L4	1	B.2(1)_L4	16.00	1.000	2015.0	7453.0	1489.0	6703.8		
B.2	L3	1	B.2(1)_L3	16.00	1.000	1883.2	9336.2	987.4	7691.2	ΣWL	ΣEL
B.2	L2	1	B.2(1)_L2	16.00	1.000	1752.2	11088.3	513.2	8204.4	11088.3	8204.4
B.7	HR	1	B.7(1)_HR	12.00	1.000	1148.9	1148.9	1056.3	1056.3		
B.7	MR	1	B.7(1)_MR	12.00	1.000	930.9	2079.7	1403.4	2459.7		
B.7	L5	1	B.7(1)_L5	12.00	1.000	1500.0	3579.7	1573.3	4033.0		
B.7	L4	1	B.7(1)_L4	12.00	1.000	1329.3	4909.1	1152.2	5185.2		
B.7	L3	1	B.7(1)_L3	12.00	1.000	1242.4	6151.5	764.1	5949.3	ΣWL	ΣEL
B.7	L2	1	B.7(1)_L2	12.00	1.000	1156.0	7307.4	400.0	6349.3	7307.4	6349.3
C.3	HR	2	C.3(2)_HR	7.00	1.000	990.9	990.9	910.1	910.1		
C.3	MR	1	C.3(1)_MR	8.00	0.533	427.7	427.7	1267.9	1267.9		
C.3	MR	2	C.3(2)_MR	7.00	0.467	374.2	872.3	1109.4	1659.1		
C.3	L5	1	C.3(1)_L5	8.00	0.533	689.1	1714.2	1069.6	2196.0		
C.3	L5	2	C.3(2)_L5	7.00	0.467	603.0	1500.0	935.9	1921.5		
C.3	L4	1	C.3(1)_L4	8.00	0.533	610.7	2370.4	783.3	2562.1		
C.3	L4	2	C.3(2)_L4	7.00	0.467	534.4	2074.1	685.4	2241.9		
C.3	L3	1	C.3(1)_L3	8.00	0.533	570.8	2981.5	519.4	2776.1		
C.3	L3	2	C.3(2)_L3	7.00	0.467	499.4	2608.8	454.5	2429.1		
C.3	L2	1	C.3(1)_L2	8.00	0.533	531.1	3550.3	254.3	2827.8	ΣWL	ΣEL
C.3	L2	2	C.3(2)_L2	7.00	0.467	464.7	3106.5	222.5	2474.3	6656.7	5302.2
C.6'	HR	1	C.6(1)_HR	9.83	1.000	312.0	312.0	240.5	240.5		
C.6	HR	2	C.6(2)_HR	11.33	1.000	1393.6	1393.6	1452.6	1452.6		
C.6	MR	1	C.6(1)_MR	9.83	0.465	493.3	1285.7	1536.3	2322.8		
C.6	MR	2	C.6(2)_MR	11.33	0.535	568.5	1481.8	1770.6	2677.1		
C.6	L5	1	C.6(1)_L5	9.83	0.465	794.9	2080.5	1444.8	3767.6		
C.6	L5	2	C.6(2)_L5	11.33	0.535	916.1	2397.9	1665.2	4342.4		
C.6	L4	1	C.6(1)_L4	9.83	0.465	704.4	2785.0	1058.1	4825.8		
C.6	L4	2	C.6(2)_L4	11.33	0.535	811.9	3209.8	1219.5	5561.9		
C.6	L3	1	C.6(1)_L3	9.83	0.465	658.4	3443.3	701.7	5527.4		
C.6	L3	2	C.6(2)_L3	11.33	0.535	758.8	3968.6	808.7	6370.6		
C.6	L2	1	C.6(1)_L2	9.83	0.465	612.6	4055.9	343.6	5871.0	ΣWL	ΣEL
C.6	L2	2	C.6(2)_L2	11.33	0.535	706.0	4674.6	396.0	6766.6	8730.5	12637.6
E	MR	1	E(1)_MR	16.00	0.400	253.5	253.5	686.0	686.0		
E	MR	2	E(2)_MR	14.00	0.350	221.9	221.9	600.3	600.3		
E	MR	3	E(3)_MR	10.00	0.250	158.5	158.5	428.8	428.8		
E	L5	1	E(1)_L5	16.00	0.400	408.5	662.1	726.5	1412.5		
E	L5	2	E(2)_L5	14.00	0.350	357.5	579.3	635.7	1235.9		
E	L5	3	E(3)_L5	10.00	0.250	255.3	413.8	454.1	882.8		
E	L4	1	E(1)_L4	16.00	0.400	362.1	1024.2	532.0	1944.5		
E	L4	2	E(2)_L4	14.00	0.350	316.8	896.1	465.5	1701.5		
E	L4	3	E(3)_L4	10.00	0.250	226.3	640.1	332.5	1215.3		
E	L3	1	E(1)_L3	16.00	0.400	338.4	1362.5	352.8	2297.4		
E	L3	2	E(2)_L3	14.00	0.350	296.1	1192.2	308.7	2010.2		
E	L3	3	E(3)_L3	10.00	0.250	211.5	851.6	220.5	1435.8		
E	L2	1	E(1)_L2	16.00	0.400	314.8	1677.4	172.7	2470.1		
E	L2	2	E(2)_L2	14.00	0.350	275.5	1467.7	151.2	2161.3	ΣWL	ΣEL
E	L2	3	E(3)_L2	10.00	0.250	196.8	1048.4	108.0	1543.8	4193.5	6175.3

Lateral Force Distribution To Shear Wall Piers

Grid Line	Floor Level	Pier Stack #	Shear Wall Mark	Wall Pier Length [ft]	Length Ratio	Allowable Wind Demand (0.6 WL)		Allowable Seismic Demand (0.7 EL)			
						Level [lbs]	Cumulative [lbs]	Level [lbs]	Cumulative [lbs]		
F	HR	1	F(1)_HR	8.00	0.190	228.6	228.6	1133.0	1133.0		
F	HR	2	F(2)_HR	34.00	0.810	971.4	971.4	4815.3	4815.3		
F	MR	1	F(1)_MR	8.00	0.190	242.1	470.7	705.3	1838.3		
F	MR	2	F(2)_MR	34.00	0.810	1028.9	2000.3	2997.5	7812.8		
F	L5	1	F(1)_L5	8.00	0.190	414.3	885.0	742.6	2580.9		
F	L5	2	F(2)_L5	34.00	0.810	1761.0	3761.3	3156.0	10968.7		
F	L4	1	F(1)_L4	8.00	0.190	367.2	1252.2	543.8	3124.7		
F	L4	2	F(2)_L4	34.00	0.810	1560.6	5321.9	2311.2	13280.0		
F	L3	1	F(1)_L3	8.00	0.190	343.2	1595.4	360.6	3485.3		
F	L3	2	F(2)_L3	34.00	0.810	1458.5	6780.5	1532.6	14812.6		
F	L2	1	F(1)_L2	8.00	0.190	319.3	1914.7	176.6	3661.9	ΣWL	ΣEL
F	L2	2	F(2)_L2	34.00	0.810	1357.1	8137.5	750.4	15563.1	10052.3	19224.9
G	HR	1	G(1)_HR	7.50	0.217	260.9	260.9	1274.1	1274.1		
G	HR	2	G(2)_HR	7.50	0.217	260.9	260.9	1274.1	1274.1		
G	HR	3	G(3)_HR	6.00	0.174	208.7	208.7	1019.3	1019.3		
G	HR	4	G(4)_HR	6.00	0.174	208.7	208.7	1019.3	1019.3		
G	HR	5	G(5)_HR	7.50	0.217	260.9	260.9	1274.1	1274.1		
G	L5	1	G(1)_L5	7.50	0.217	386.0	646.9	701.5	1975.6		
G	L5	2	G(2)_L5	7.50	0.217	386.0	646.9	701.5	1975.6		
G	L5	3	G(3)_L5	6.00	0.174	308.8	517.5	561.2	1580.5		
G	L5	4	G(4)_L5	6.00	0.174	308.8	517.5	561.2	1580.5		
G	L5	5	G(5)_L5	7.50	0.217	386.0	646.9	701.5	1975.6		
G	L4	1	G(1)_L4	7.50	0.217	342.1	989.0	513.8	2489.4		
G	L4	2	G(2)_L4	7.50	0.217	342.1	989.0	513.8	2489.4		
G	L4	3	G(3)_L4	6.00	0.174	273.7	791.2	411.0	1991.5		
G	L4	4	G(4)_L4	6.00	0.174	273.7	791.2	411.0	1991.5		
G	L4	5	G(5)_L4	7.50	0.217	342.1	989.0	513.8	2489.4		
G	L3	1	G(1)_L3	7.50	0.217	319.7	1308.7	340.7	2830.1		
G	L3	2	G(2)_L3	7.50	0.217	319.7	1308.7	340.7	2830.1		
G	L3	3	G(3)_L3	6.00	0.174	255.8	1047.0	272.6	2264.1		
G	L3	4	G(4)_L3	6.00	0.174	255.8	1047.0	272.6	2264.1		
G	L3	5	G(5)_L3	7.50	0.217	319.7	1308.7	340.7	2830.1		
G	L2	1	G(1)_L2	7.50	0.217	297.5	1606.2	166.8	2996.9		
G	L2	2	G(2)_L2	7.50	0.217	297.5	1606.2	166.8	2996.9		
G	L2	3	G(3)_L2	6.00	0.174	238.0	1285.0	133.5	2397.5		
G	L2	4	G(4)_L2	6.00	0.174	238.0	1285.0	133.5	2397.5	ΣWL	ΣEL
G	L2	5	G(5)_L2	7.50	0.217	297.5	1606.2	166.8	2996.9	7388.6	13785.7

KL&A Engineers & Builders

Title	Basecamp Phase II	Date	3 5 26	Job No.	25336
Subject	Wall Shear & Diaphragm Design	By	APS	Sheet	

Level	Story Height		Framing Depth		Wall Height	
	Elev [ft]	Height [ft]	Type 3 [in]	Platform [in]	Type 3 [ft]	Platform [ft]
HR	58.833	6.229	3.75	18.042	5.917	4.726
MR	52.604	10.646	3.75	23.125	10.333	8.719
L5	41.958	10.490	3.75	21.25	10.177	8.719
L4	31.469	10.490	3.75	21.25	10.177	8.719
L3	20.979	10.490	3.75	21.25	10.177	8.719
L2	10.490	10.490	3.75	21.25	10.177	8.719

Maximum H/L Ratios	
Unblocked	2
Blocked	3.5

Sheathing Type	Allowable Shear Wall Capacities [plf]		Seismic Diaphragm Amplification Factors		Allowable Diaphragm Capacity [plf]	
	Wind	Seismic	Level	Factor	Wind	Seismic
1	218.4	156	HR	1.00	252	180
2	490	350	MR	1.05		
3	686	490	L5	1.18		
4	896	640	L4	1.40		
5	1792	1280	L3	2.00		
			L2	4.00		

Name Key: Grid(Shear Wall #)_Level

Shear Wall Mark	Level	Wall Pier Length [ft]	Framing Type	Wall Height [ft]	H/L Ratio	Blocked/ Unblocked?	H/L Factor	Wind Demand (Allowable)		Seismic Demand (Allowable)		Sheathing Type	Wall Sheathing Capacity (Allowable)		Max Shear Wall D/C	EL Diaph Amplf'n Factor	Diaphragm Sheathing Capacity (Allowable)		Max Diaphragm D/C	Diaphragm Collector Force		Max Collector Length [ft]	Diaphragm D/C Notes
								Level [plf]	Cumulative [plf]	Level [plf]	Cumulative [plf]		Wind [plf]	Seismic [plf]			Wind [plf]	Seismic [plf]		Wind [lbs]	Seismic [lbs]		
1(1)_HR	HR	10.00	Platform	7.00	0.70	U	1.00	46	46	77	77	1	218	156	0.49	1.00	252	180	0.43	0.0	0.0	0.0	
2(1)_HR	HR	8.50	Platform	13.50	1.59	B	1.00	172	172	207	207	2	490	350	0.59	1.00	252	180	1.15	0.0	225.9	2.0	**Collector**
4(1)_HR	HR	12.00	Platform	14.00	1.17	B	1.00	133	133	160	160	2	490	350	0.46	1.00	252	180	0.89	0.0	0.0	0.0	
5(1)_HR	HR	12.00	Platform	14.00	1.17	U	1.00	83	83	100	100	1	218	156	0.64	1.00	252	180	0.56	0.0	0.0	0.0	
6(1)_HR	HR	12.00	Platform	14.00	1.17	B	1.00	137	137	165	165	2	490	350	0.47	1.00	252	180	0.92	0.0	0.0	0.0	
7(1)_HR	HR	8.83	**CMU**	4.73	0.54	**CMU**	**CMU**	38	38	27	27	**CMU**	**CMU**	**CMU**	**N/A**	1.00	252	180	0.15	0.0	0.0	0.0	
8(1)_HR	HR	12.00	Platform	14.00	1.17	B	1.00	276	276	349	349	3	686	490	0.71	1.00	252	180	1.94	293.6	2025.5	12.0	**Collector**
8(2)_HR	HR	12.00	Platform	6.50	0.54	U	1.00	26	26	80	80	1	218	156	0.51	1.00	252	180	0.44	0.0	0.0	0.0	
8(3)_HR	HR	18.00	Platform	6.50	0.36	U	1.00	26	26	80	80	1	218	156	0.51	1.00	252	180	0.44	0.0	0.0	0.0	
8(4)_HR	HR	9.00	Platform	6.50	0.72	U	1.00	26	26	80	80	1	218	156	0.51	1.00	252	180	0.44	0.0	0.0	0.0	
9(1)_HR	HR	6.00	Platform	7.00	1.17	U	1.00	0	0	0	0	1	218	156	0.00	1.00	252	180	0.00	0.0	0.0	0.0	
9(2)_HR	HR	6.00	Platform	11.50	1.92	U	1.00	43	43	129	129	1	218	156	0.83	1.00	252	180	0.72	0.0	0.0	0.0	
9(3)_HR	HR	6.00	Platform	11.50	1.92	U	1.00	43	43	129	129	1	218	156	0.83	1.00	252	180	0.72	0.0	0.0	0.0	
9(4)_HR	HR	6.00	Platform	11.50	1.92	U	1.00	43	43	129	129	1	218	156	0.83	1.00	252	180	0.72	0.0	0.0	0.0	
A(2)_HR	HR	7.25	Platform	7.00	0.97	B	1.00	147	147	162	162	2	490	350	0.46	1.00	252	180	0.90	0.0	0.0	0.0	
B.2(1)_HR	HR	16.00	Platform	15.00	0.94	U	1.00	110	110	101	101	1	218	156	0.65	1.00	252	180	0.56	0.0	0.0	0.0	
B.7(1)_HR	HR	12.00	Platform	14.00	1.17	U	1.00	96	96	88	88	1	218	156	0.56	1.00	252	180	0.49	0.0	0.0	0.0	
C.3(2)_HR	HR	7.00	Platform	15.00	2.14	B	1.00	142	142	130	130	2	490	350	0.37	1.00	252	180	0.72	0.0	0.0	0.0	
C.6(1)_HR	HR	9.83	**CMU**	4.73	0.48	**CMU**	**CMU**	32	32	24	24	**CMU**	**CMU**	**CMU**	**N/A**	1.00	252	180	0.14	0.0	0.0	0.0	
C.6(2)_HR	HR	11.33	Platform	14.00	1.24	U	1.00	123	123	128	128	1	218	156	0.82	1.00	252	180	0.71	0.0	0.0	0.0	
F(1)_HR	HR	8.00	Platform	5.00	0.63	U	1.00	29	29	142	142	1	218	156	0.91	1.00	252	180	0.79	0.0	0.0	0.0	
F(2)_HR	HR	34.00	Platform	5.00	0.15	U	1.00	29	29	142	142	1	218	156	0.91	1.00	252	180	0.79	0.0	0.0	0.0	
G(1)_HR	HR	7.50	Platform	11.50	1.53	B	1.00	35	35	170	170	2	490	350	0.49	1.00	252	180	0.94	0.0	0.0	0.0	
G(2)_HR	HR	7.50	Platform	11.50	1.53	B	1.00	35	35	170	170	2	490	350	0.49	1.00	252	180	0.94	0.0	0.0	0.0	
G(3)_HR	HR	6.00	Platform	11.50	1.92	B	1.00	35	35	170	170	2	490	350	0.49	1.00	252	180	0.94	0.0	0.0	0.0	
G(4)_HR	HR	6.00	Platform	11.50	1.92	B	1.00	35	35	170	170	2	490	350	0.49	1.00	252	180	0.94	0.0	0.0	0.0	
G(5)_HR	HR	7.50	Platform	11.50	1.53	B	1.00	35	35	170	170	2	490	350	0.49	1.00	252	180	0.94	0.0	0.0	0.0	

KL&A Engineers & Builders

Title	Basecamp Phase II	Date	3 5 26	Job No.	25336
Subject	Wall Shear & Diaphragm Design	By	APS	Sheet	

Level	Story Height		Framing Depth		Wall Height	
	Elev [ft]	Height [ft]	Type 3 [in]	Platform [in]	Type 3 [ft]	Platform [ft]
HR	58.833	6.229	3.75	18.042	5.917	4.726
MR	52.604	10.646	3.75	23.125	10.333	8.719
L5	41.958	10.490	3.75	21.25	10.177	8.719
L4	31.469	10.490	3.75	21.25	10.177	8.719
L3	20.979	10.490	3.75	21.25	10.177	8.719
L2	10.490	10.490	3.75	21.25	10.177	8.719

Maximum H/L Ratios	
Unblocked	2
Blocked	3.5

Sheathing Type	Allowable Shear Wall Capacities [plf]		Seismic Diaphragm Amplification Factors		Allowable Diaphragm Capacity [plf]	
	Wind	Seismic	Level	Factor	Wind	Seismic
1	218.4	156	HR	1.00	252	180
2	490	350	MR	1.05		
3	686	490	L5	1.18		
4	896	640	L4	1.40		
5	1792	1280	L3	2.00		
			L2	4.00		

Name Key: Grid(Shear Wall #)_Level

Shear Wall Mark	Level	Wall Pier Length [ft]	Framing Type	Wall Height [ft]	H/L Ratio	Blocked/ Unblocked?	H/L Factor	Wind Demand (Allowable)		Seismic Demand (Allowable)		Sheathing Type	Wall Sheathing Capacity (Allowable)		Max Shear Wall D/C	EL Diaph Amplf'n Factor	Diaphragm Sheathing Capacity (Allowable)		Max Diaphragm D/C	Diaphragm Collector Force		Max Collector Length [ft]	Diaphragm D/C Notes
								Level [plf]	Cumulative [plf]	Level [plf]	Cumulative [plf]		Wind [plf]	Seismic [plf]			Wind [plf]	Seismic [plf]		Wind [lbs]	Seismic [lbs]		
1(1)_MR	MR	10.00	Type 3	10.33	1.03	U	1.00	34	57	22	60	1	218	156	0.39	1.05	252	180	0.13	0.0	0.0	0.0	
1(2)_MR	MR	10.00	Platform	8.72	0.87	U	1.00	34	57	22	60	1	218	156	0.39	1.05	252	180	0.13	0.0	0.0	0.0	
2(1)_MR	MR	8.50	Platform	8.72	1.03	B	1.00	120	199	114	209	2	490	350	0.60	1.05	252	180	0.67	0.0	0.0	0.0	
2(2)_MR	MR	10.00	Platform	8.72	0.87	B	1.00	120	199	114	209	2	490	350	0.60	1.05	252	180	0.67	0.0	0.0	0.0	
4(1)_MR	MR	12.00	Platform	8.72	0.73	B	1.00	117	189	108	195	2	490	350	0.56	1.05	252	180	0.63	0.0	0.0	0.0	
4(2)_MR	MR	10.00	Platform	8.72	0.87	B	1.00	117	189	108	195	2	490	350	0.56	1.05	252	180	0.63	0.0	0.0	0.0	
5(1)_MR	MR	12.00	Platform	8.72	0.73	U	1.00	82	127	68	122	1	218	156	0.78	1.05	252	180	0.39	0.0	0.0	0.0	
5(2)_MR	MR	10.00	Platform	8.72	0.87	U	1.00	82	127	68	122	1	218	156	0.78	1.05	252	180	0.39	0.0	0.0	0.0	
6(1)_MR	MR	12.00	Platform	8.72	0.73	B	1.00	64	124	98	170	2	490	350	0.49	1.05	252	180	0.57	0.0	0.0	0.0	
6(2)_MR	MR	7.00	Platform	8.72	1.25	B	1.00	64	124	98	170	2	490	350	0.49	1.05	252	180	0.57	0.0	0.0	0.0	
6(3)_MR	MR	8.67	Platform	8.72	1.01	B	1.00	64	124	98	170	2	490	350	0.49	1.05	252	180	0.57	0.0	0.0	0.0	
7(1)_MR	MR	8.83	**CMU**	8.72	0.99	**CMU**	**CMU**	44	55	87	95	**CMU**	**CMU**	**CMU**	**N/A**	1.05	252	180	0.51	0.0	0.0	0.0	
7(2)_MR	MR	12.00	Platform	8.72	0.73	U	1.00	44	55	87	95	1	218	156	0.61	1.05	252	180	0.51	0.0	0.0	0.0	
7(3)_MR	MR	9.50	Platform	8.72	0.92	U	1.00	44	55	87	95	1	218	156	0.61	1.05	252	180	0.51	0.0	0.0	0.0	
8(1)_MR	MR	12.00	Platform	8.72	0.73	B	1.00	18	103	63	206	2	490	350	0.59	1.05	252	180	0.37	0.0	0.0	0.0	
8(2)_MR	MR	12.00	Platform	8.72	0.73	B	1.00	18	103	63	206	2	490	350	0.59	1.05	252	180	0.37	0.0	0.0	0.0	
8(3)_MR	MR	18.00	Platform	8.72	0.48	B	1.00	18	103	63	206	2	490	350	0.59	1.05	252	180	0.37	0.0	0.0	0.0	
8(4)_MR	MR	9.00	Platform	8.72	0.97	B	1.00	18	103	63	206	2	490	350	0.59	1.05	252	180	0.37	0.0	0.0	0.0	
9(1)_MR	MR	6.00	Type 3	10.33	1.72	B	1.00	0	128	0	388	3	686	490	0.79	1.05	252	180	0.00	0.0	0.0	0.0	
A(1)_MR	MR	6.50	Platform	8.72	1.34	U	1.00	62	62	68	68	1	218	156	0.44	1.05	252	180	0.40	0.0	0.0	0.0	
A(2)_MR	MR	7.25	Type 3	10.33	1.43	B	1.00	62	140	68	154	2	490	350	0.44	1.05	252	180	0.40	0.0	0.0	0.0	
B.2(1)_MR	MR	16.00	Platform	8.72	0.54	B	1.00	88	198	98	199	2	490	350	0.57	1.05	252	180	0.57	0.0	0.0	0.0	
B.7(1)_MR	MR	12.00	Platform	8.72	0.73	B	1.00	78	173	117	205	2	490	350	0.59	1.05	252	180	0.68	0.0	0.0	0.0	
C.3(1)_MR	MR	8.00	Platform	8.72	1.09	B	1.00	53	53	158	158	2	490	350	0.45	1.05	252	180	0.93	0.0	0.0	0.0	
C.3(2)_MR	MR	7.00	Platform	8.72	1.25	B	1.00	53	125	158	237	2	490	350	0.68	1.05	252	180	0.93	0.0	0.0	0.0	
C.6(1)_MR	MR	9.83	Platform	8.72	0.89	**CMU**	**CMU**	50	131	156	236	**CMU**	**CMU**	**CMU**	**N/A**	1.05	252	180	0.91	0.0	0.0	0.0	
C.6(2)_MR	MR	11.33	Platform	8.72	0.77	B	1.00	50	131	156	236	2	490	350	0.67	1.05	252	180	0.91	0.0	0.0	0.0	
E(1)_MR	MR	16.00	Platform	8.72	0.54	U	1.00	16	16	43	43	1	218	156	0.27	1.05	252	180	0.25	0.0	0.0	0.0	
E(2)_MR	MR	14.00	Platform	8.72	0.62	U	1.00	16	16	43	43	1	218	156	0.27	1.05	252	180	0.25	0.0	0.0	0.0	
E(3)_MR	MR	10.00	Platform	8.72	0.87	U	1.00	16	16	43	43	1	218	156	0.27	1.05	252	180	0.25	0.0	0.0	0.0	
F(1)_MR	MR	8.00	Platform	8.72	1.09	B	1.00	30	59	88	230	2	490	350	0.66	1.05	252	180	0.52	0.0	0.0	0.0	
F(2)_MR	MR	34.00	Platform	8.72	0.26	B	1.00	30	59	88	230	2	490	350	0.66	1.05	252	180	0.52	0.0	0.0	0.0	

KL&A Engineers & Builders

Title	Basecamp Phase II	Date	3 5 26	Job No.	25336
Subject	Wall Shear & Diaphragm Design	By	APS	Sheet	

Level	Story Height		Framing Depth		Wall Height	
	Elev [ft]	Height [ft]	Type 3 [in]	Platform [in]	Type 3 [ft]	Platform [ft]
HR	58.833	6.229	3.75	18.042	5.917	4.726
MR	52.604	10.646	3.75	23.125	10.333	8.719
L5	41.958	10.490	3.75	21.25	10.177	8.719
L4	31.469	10.490	3.75	21.25	10.177	8.719
L3	20.979	10.490	3.75	21.25	10.177	8.719
L2	10.490	10.490	3.75	21.25	10.177	8.719

Maximum H/L Ratios	
Unblocked	2
Blocked	3.5

Sheathing Type	Allowable Shear Wall Capacities [plf]		Seismic Diaphragm Amplification Factors		Allowable Diaphragm Capacity [plf]	
	Wind	Seismic	Level	Factor	Wind	Seismic
1	218.4	156	HR	1.00	252	180
2	490	350	MR	1.05		
3	686	490	L5	1.18		
4	896	640	L4	1.40		
5	1792	1280	L3	2.00		
			L2	4.00		

Name Key: Grid(Shear Wall #)_Level

Shear Wall Mark	Level	Wall Pier Length [ft]	Framing Type	Wall Height [ft]	H/L Ratio	Blocked/ Unblocked?	H/L Factor	Wind Demand (Allowable)		Seismic Demand (Allowable)		Sheathing Type	Wall Sheathing Capacity (Allowable)		Max Shear Wall D/C	EL Diaph Amplf'n Factor	Diaphragm Sheathing Capacity (Allowable)		Max Diaphragm D/C	Diaphragm Collector Force		Max Collector Length [ft]	Diaphragm D/C Notes
								Level [plf]	Cumulative [plf]	Level [plf]	Cumulative [plf]		Wind [plf]	Seismic [plf]			Wind [plf]	Seismic [plf]		Wind [lbs]	Seismic [lbs]		
1(1)_L5	L5	10.00	Type 3	10.18	1.02	U	1.00	32	89	30	91	1	218	156	0.58	1.18	252	180	0.20	0.0	0.0	0.0	
1(2)_L5	L5	10.00	Type 3	10.18	1.02	U	1.00	32	89	30	91	1	218	156	0.58	1.18	252	180	0.20	0.0	0.0	0.0	
2(1)_L5	L5	8.50	Platform	8.72	1.03	B	1.00	126	325	119	328	2	490	350	0.94	1.18	252	180	0.78	0.0	0.0	0.0	
2(2)_L5	L5	10.00	Platform	8.72	0.87	B	1.00	126	325	119	328	2	490	350	0.94	1.18	252	180	0.78	0.0	0.0	0.0	
4(1)_L5	L5	12.00	Platform	8.72	0.73	B	1.00	115	304	108	304	2	490	350	0.87	1.18	252	180	0.71	0.0	0.0	0.0	
4(2)_L5	L5	10.00	Platform	8.72	0.87	B	1.00	115	304	108	304	2	490	350	0.87	1.18	252	180	0.71	0.0	0.0	0.0	
5(1)_L5	L5	12.00	Platform	8.72	0.73	B	1.00	78	205	73	196	2	490	350	0.56	1.18	252	180	0.48	0.0	0.0	0.0	
5(2)_L5	L5	10.00	Platform	8.72	0.87	B	1.00	78	205	73	196	2	490	350	0.56	1.18	252	180	0.48	0.0	0.0	0.0	
6(1)_L5	L5	12.00	Platform	8.72	0.73	B	1.00	81	204	98	268	2	490	350	0.77	1.18	252	180	0.64	0.0	0.0	0.0	
6(2)_L5	L5	7.00	Platform	8.72	1.25	B	1.00	81	204	98	268	2	490	350	0.77	1.18	252	180	0.64	0.0	0.0	0.0	
6(3)_L5	L5	8.67	Platform	8.72	1.01	B	1.00	81	204	98	268	2	490	350	0.77	1.18	252	180	0.64	0.0	0.0	0.0	
7(1)_L5	L5	8.83	CMU	8.72	0.99	CMU	CMU	64	120	117	213	CMU	CMU	CMU	N/A	1.18	252	180	0.77	0.0	0.0	0.0	
7(2)_L5	L5	12.00	Platform	8.72	0.73	B	1.00	64	120	117	213	2	490	350	0.61	1.18	252	180	0.77	0.0	0.0	0.0	
7(3)_L5	L5	9.50	Platform	8.72	0.92	B	1.00	64	120	117	213	2	490	350	0.61	1.18	252	180	0.77	0.0	0.0	0.0	
8(1)_L5	L5	12.00	Platform	8.72	0.73	B	1.00	40	143	63	269	2	490	350	0.77	1.18	252	180	0.42	0.0	0.0	0.0	
8(2)_L5	L5	12.00	Platform	8.72	0.73	B	1.00	40	143	63	269	2	490	350	0.77	1.18	252	180	0.42	0.0	0.0	0.0	
8(3)_L5	L5	18.00	Platform	8.72	0.48	B	1.00	40	143	63	269	2	490	350	0.77	1.18	252	180	0.42	0.0	0.0	0.0	
8(4)_L5	L5	9.00	Platform	8.72	0.97	B	1.00	40	143	63	269	2	490	350	0.77	1.18	252	180	0.42	0.0	0.0	0.0	
9(1)_L5	L5	6.00	Type 3	10.18	1.70	B	1.00	68	100	107	204	2	490	350	0.58	1.18	252	180	0.70	0.0	0.0	0.0	
9(2)_L5	L5	6.00	Type 3	10.18	1.70	B	1.00	68	100	107	204	2	490	350	0.58	1.18	252	180	0.70	0.0	0.0	0.0	
9(3)_L5	L5	6.00	Type 3	10.18	1.70	B	1.00	68	100	107	204	2	490	350	0.58	1.18	252	180	0.70	0.0	0.0	0.0	
9(4)_L5	L5	6.00	Type 3	10.18	1.70	B	1.00	68	100	107	204	2	490	350	0.58	1.18	252	180	0.70	0.0	0.0	0.0	
A(1)_L5	L5	6.50	Type 3	10.18	1.57	B	1.00	100	240	89	243	2	490	350	0.69	1.18	252	180	0.58	0.0	0.0	0.0	
A(2)_L5	L5	7.25	Type 3	10.18	1.40	B	1.00	100	240	89	243	2	490	350	0.69	1.18	252	180	0.58	0.0	0.0	0.0	
B.2(1)_L5	L5	16.00	Platform	8.72	0.54	B	1.00	142	340	127	326	2	490	350	0.93	1.18	252	180	0.83	0.0	0.0	0.0	
B.7(1)_L5	L5	12.00	Platform	8.72	0.73	B	1.00	125	298	131	336	3	686	490	0.69	1.18	252	180	0.86	0.0	0.0	0.0	
C.3(1)_L5	L5	8.00	Platform	8.72	1.09	B	1.00	86	214	134	275	2	490	350	0.78	1.18	252	180	0.88	0.0	0.0	0.0	
C.3(2)_L5	L5	7.00	Platform	8.72	1.25	B	1.00	86	214	134	275	2	490	350	0.78	1.18	252	180	0.88	0.0	0.0	0.0	
C.6(1)_L5	L5	9.83	CMU	8.72	0.89	CMU	CMU	81	212	147	383	CMU	CMU	CMU	N/A	1.18	252	180	0.96	0.0	0.0	0.0	
C.6(2)_L5	L5	11.33	Platform	8.72	0.77	B	1.00	81	212	147	383	3	686	490	0.78	1.18	252	180	0.96	0.0	0.0	0.0	
E(1)_L5	L5	16.00	Platform	8.72	0.54	U	1.00	26	41	45	88	1	218	156	0.57	1.18	252	180	0.30	0.0	0.0	0.0	
E(2)_L5	L5	14.00	Platform	8.72	0.62	U	1.00	26	41	45	88	1	218	156	0.57	1.18	252	180	0.30	0.0	0.0	0.0	
E(3)_L5	L5	10.00	Platform	8.72	0.87	U	1.00	26	41	45	88	1	218	156	0.57	1.18	252	180	0.30	0.0	0.0	0.0	
F(1)_L5	L5	8.00	Platform	8.72	1.09	B	1.00	52	111	93	323	2	490	350	0.92	1.18	252	180	0.61	0.0	0.0	0.0	
F(2)_L5	L5	34.00	Platform	8.72	0.26	B	1.00	52	111	93	323	2	490	350	0.92	1.18	252	180	0.61	0.0	0.0	0.0	
G(1)_L5	L5	7.50	Type 3	10.18	1.36	B	1.00	51	86	94	263	2	490	350	0.75	1.18	252	180	0.61	0.0	0.0	0.0	
G(2)_L5	L5	7.50	Type 3	10.18	1.36	B	1.00	51	86	94	263	2	490	350	0.75	1.18	252	180	0.61	0.0	0.0	0.0	
G(3)_L5	L5	6.00	Type 3	10.18	1.70	B	1.00	51	86	94	263	2	490	350	0.75	1.18	252	180	0.61	0.0	0.0	0.0	
G(4)_L5	L5	6.00	Type 3	10.18	1.70	B	1.00	51	86	94	263	2	490	350	0.75	1.18	252	180	0.61	0.0	0.0	0.0	
G(5)_L5	L5	7.50	Type 3	10.18	1.36	B	1.00	51	86	94	263	2	490	350	0.75	1.18	252	180	0.61	0.0	0.0	0.0	

KL&A Engineers & Builders

Title	Basecamp Phase II	Date	3 5 26	Job No.	25336
Subject	Wall Shear & Diaphragm Design	By	APS	Sheet	

Level	Story Height		Framing Depth		Wall Height	
	Elev [ft]	Height [ft]	Type 3 [in]	Platform [in]	Type 3 [ft]	Platform [ft]
HR	58.833	6.229	3.75	18.042	5.917	4.726
MR	52.604	10.646	3.75	23.125	10.333	8.719
L5	41.958	10.490	3.75	21.25	10.177	8.719
L4	31.469	10.490	3.75	21.25	10.177	8.719
L3	20.979	10.490	3.75	21.25	10.177	8.719
L2	10.490	10.490	3.75	21.25	10.177	8.719

Maximum H/L Ratios	
Unblocked	2
Blocked	3.5

Sheathing Type	Allowable Shear Wall Capacities [plf]		Seismic Diaphragm Amplification Factors		Allowable Diaphragm Capacity [plf]	
	Wind	Seismic	Level	Factor	Wind	Seismic
1	218.4	156	HR	1.00	252	180
2	490	350	MR	1.05		
3	686	490	L5	1.18		
4	896	640	L4	1.40		
5	1792	1280	L3	2.00		
			L2	4.00		

Name Key: Grid(Shear Wall #)_Level

Shear Wall Mark	Level	Wall Pier Length [ft]	Framing Type	Wall Height [ft]	H/L Ratio	Blocked/ Unblocked?	H/L Factor	Wind Demand (Allowable)		Seismic Demand (Allowable)		Sheathing Type	Wall Sheathing Capacity (Allowable)		Max Shear Wall D/C	EL Diaph Amplf'n Factor	Diaphragm Sheathing Capacity (Allowable)		Max Diaphragm D/C	Diaphragm Collector Force		Max Collector Length [ft]	Diaphragm D/C Notes
								Level [plf]	Cumulative [plf]	Level [plf]	Cumulative [plf]		Wind [plf]	Seismic [plf]			Wind [plf]	Seismic [plf]		Wind [lbs]	Seismic [lbs]		
1(1)_L4	L4	10.00	Type 3	10.18	1.02	U	1.00	29	118	22	113	1	218	156	0.72	1.40	252	180	0.17	0.0	0.0	0.0	
1(2)_L4	L4	10.00	Type 3	10.18	1.02	U	1.00	29	118	22	113	1	218	156	0.72	1.40	252	180	0.17	0.0	0.0	0.0	
2(1)_L4	L4	8.50	Platform	8.72	1.03	B	1.00	113	438	87	415	3	686	490	0.85	1.40	252	180	0.68	0.0	0.0	0.0	
2(2)_L4	L4	10.00	Platform	8.72	0.87	B	1.00	113	438	87	415	3	686	490	0.85	1.40	252	180	0.68	0.0	0.0	0.0	
4(1)_L4	L4	12.00	Platform	8.72	0.73	B	1.00	103	407	79	383	3	686	490	0.78	1.40	252	180	0.62	0.0	0.0	0.0	
4(2)_L4	L4	10.00	Platform	8.72	0.87	B	1.00	103	407	79	383	3	686	490	0.78	1.40	252	180	0.62	0.0	0.0	0.0	
5(1)_L4	L4	12.00	Platform	8.72	0.73	B	1.00	70	274	54	250	2	490	350	0.71	1.40	252	180	0.42	0.0	0.0	0.0	
5(2)_L4	L4	10.00	Platform	8.72	0.87	B	1.00	70	274	54	250	2	490	350	0.71	1.40	252	180	0.42	0.0	0.0	0.0	
6(1)_L4	L4	12.00	Platform	8.72	0.73	B	1.00	72	277	72	340	3	686	490	0.69	1.40	252	180	0.56	0.0	0.0	0.0	
6(2)_L4	L4	7.00	Platform	8.72	1.25	B	1.00	72	277	72	340	3	686	490	0.69	1.40	252	180	0.56	0.0	0.0	0.0	
6(3)_L4	L4	8.67	Platform	8.72	1.01	B	1.00	72	277	72	340	3	686	490	0.69	1.40	252	180	0.56	0.0	0.0	0.0	
7(1)_L4	L4	8.83	**CMU**	8.72	0.99	**CMU**	**CMU**	57	177	86	299	**CMU**	**CMU**	**CMU**	**N/A**	1.40	252	180	0.67	0.0	0.0	0.0	
7(2)_L4	L4	12.00	Platform	8.72	0.73	B	1.00	57	177	86	299	2	490	350	0.85	1.40	252	180	0.67	0.0	0.0	0.0	
7(3)_L4	L4	9.50	Platform	8.72	0.92	B	1.00	57	177	86	299	2	490	350	0.85	1.40	252	180	0.67	0.0	0.0	0.0	
8(1)_L4	L4	12.00	Platform	8.72	0.73	B	1.00	36	179	46	316	2	490	350	0.90	1.40	252	180	0.36	0.0	0.0	0.0	
8(2)_L4	L4	12.00	Platform	8.72	0.73	B	1.00	36	179	46	316	2	490	350	0.90	1.40	252	180	0.36	0.0	0.0	0.0	
8(3)_L4	L4	18.00	Platform	8.72	0.48	B	1.00	36	179	46	316	2	490	350	0.90	1.40	252	180	0.36	0.0	0.0	0.0	
8(4)_L4	L4	9.00	Platform	8.72	0.97	B	1.00	36	179	46	316	2	490	350	0.90	1.40	252	180	0.36	0.0	0.0	0.0	
9(1)_L4	L4	6.00	Type 3	10.18	1.70	B	1.00	61	161	79	283	2	490	350	0.81	1.40	252	180	0.61	0.0	0.0	0.0	
9(2)_L4	L4	6.00	Type 3	10.18	1.70	B	1.00	61	161	79	283	2	490	350	0.81	1.40	252	180	0.61	0.0	0.0	0.0	
9(3)_L4	L4	6.00	Type 3	10.18	1.70	B	1.00	61	161	79	283	2	490	350	0.81	1.40	252	180	0.61	0.0	0.0	0.0	
9(4)_L4	L4	6.00	Type 3	10.18	1.70	B	1.00	61	161	79	283	2	490	350	0.81	1.40	252	180	0.61	0.0	0.0	0.0	
A(1)_L4	L4	6.50	Type 3	10.18	1.57	B	1.00	89	329	65	308	2	490	350	0.88	1.40	252	180	0.51	0.0	0.0	0.0	
A(2)_L4	L4	7.25	Type 3	10.18	1.40	B	1.00	89	329	65	308	2	490	350	0.88	1.40	252	180	0.51	0.0	0.0	0.0	
B.2(1)_L4	L4	16.00	Platform	8.72	0.54	B	1.00	126	466	93	419	3	686	490	0.86	1.40	252	180	0.73	0.0	0.0	0.0	
B.7(1)_L4	L4	12.00	Platform	8.72	0.73	B	1.00	111	409	96	432	3	686	490	0.88	1.40	252	180	0.75	0.0	0.0	0.0	
C.3(1)_L4	L4	8.00	Platform	8.72	1.09	B	1.00	76	296	98	320	2	490	350	0.92	1.40	252	180	0.76	0.0	0.0	0.0	
C.3(2)_L4	L4	7.00	Platform	8.72	1.25	B	1.00	76	296	98	320	2	490	350	0.92	1.40	252	180	0.76	0.0	0.0	0.0	
C.6(1)_L4	L4	9.83	**CMU**	8.72	0.89	**CMU**	**CMU**	72	283	108	491	**CMU**	**CMU**	**CMU**	**N/A**	1.40	252	180	0.84	0.0	0.0	0.0	
C.6(2)_L4	L4	11.33	Platform	8.72	0.77	B	1.00	72	283	108	491	4	896	640	0.77	1.40	252	180	0.84	0.0	0.0	0.0	
E(1)_L4	L4	16.00	Platform	8.72	0.54	U	1.00	23	64	33	122	1	218	156	0.78	1.40	252	180	0.26	0.0	0.0	0.0	
E(2)_L4	L4	14.00	Platform	8.72	0.62	U	1.00	23	64	33	122	1	218	156	0.78	1.40	252	180	0.26	0.0	0.0	0.0	
E(3)_L4	L4	10.00	Platform	8.72	0.87	U	1.00	23	64	33	122	1	218	156	0.78	1.40	252	180	0.26	0.0	0.0	0.0	
F(1)_L4	L4	8.00	Platform	8.72	1.09	B	1.00	46	157	68	391	3	686	490	0.80	1.40	252	180	0.53	0.0	0.0	0.0	
F(2)_L4	L4	34.00	Platform	8.72	0.26	B	1.00	46	157	68	391	3	686	490	0.80	1.40	252	180	0.53	0.0	0.0	0.0	
G(1)_L4	L4	7.50	Type 3	10.18	1.36	B	1.00	46	132	69	332	2	490	350	0.95	1.40	252	180	0.53	0.0	0.0	0.0	
G(2)_L4	L4	7.50	Type 3	10.18	1.36	B	1.00	46	132	69	332	2	490	350	0.95	1.40	252	180	0.53	0.0	0.0	0.0	
G(3)_L4	L4	6.00	Type 3	10.18	1.70	B	1.00	46	132	69	332	2	490	350	0.95	1.40	252	180	0.53	0.0	0.0	0.0	
G(4)_L4	L4	6.00	Type 3	10.18	1.70	B	1.00	46	132	69	332	2	490	350	0.95	1.40	252	180	0.53	0.0	0.0	0.0	
G(5)_L4	L4	7.50	Type 3	10.18	1.36	B	1.00	46	132	69	332	2	490	350	0.95	1.40	252	180	0.53	0.0	0.0	0.0	

KL&A Engineers & Builders

Title	Basecamp Phase II	Date	3 5 26	Job No.	25336
Subject	Wall Shear & Diaphragm Design	By	APS	Sheet	

Level	Story Height		Framing Depth		Wall Height	
	Elev [ft]	Height [ft]	Type 3 [in]	Platform [in]	Type 3 [ft]	Platform [ft]
HR	58.833	6.229	3.75	18.042	5.917	4.726
MR	52.604	10.646	3.75	23.125	10.333	8.719
L5	41.958	10.490	3.75	21.25	10.177	8.719
L4	31.469	10.490	3.75	21.25	10.177	8.719
L3	20.979	10.490	3.75	21.25	10.177	8.719
L2	10.490	10.490	3.75	21.25	10.177	8.719

Maximum H/L Ratios	
Unblocked	2
Blocked	3.5

Sheathing Type	Allowable Shear Wall Capacities [plf]		Seismic Diaphragm Amplification Factors		Allowable Diaphragm Capacity [plf]	
	Wind	Seismic	Level	Factor	Wind	Seismic
1	218.4	156	HR	1.00	252	180
2	490	350	MR	1.05		
3	686	490	L5	1.18		
4	896	640	L4	1.40		
5	1792	1280	L3	2.00		
			L2	4.00		

Name Key: Grid(Shear Wall #)_Level

Shear Wall Mark	Level	Wall Pier Length [ft]	Framing Type	Wall Height [ft]	H/L Ratio	Blocked/ Unblocked?	H/L Factor	Wind Demand (Allowable)		Seismic Demand (Allowable)		Sheathing Type	Wall Sheathing Capacity (Allowable)		Max Shear Wall D/C	EL Diaph Amplf'n Factor	Diaphragm Sheathing Capacity (Allowable)		Max Diaphragm D/C	Diaphragm Collector Force		Max Collector Length [ft]	Diaphragm D/C Notes
								Level [plf]	Cumulative [plf]	Level [plf]	Cumulative [plf]		Wind [plf]	Seismic [plf]			Wind [plf]	Seismic [plf]		Wind [lbs]	Seismic [lbs]		
1(1)_L3	L3	10.00	Type 3	10.18	1.02	U	1.00	27	145	15	128	1	218	156	0.82	2.00	252	180	0.16	0.0	0.0	0.0	
1(2)_L3	L3	10.00	Type 3	10.18	1.02	U	1.00	27	145	15	128	1	218	156	0.82	2.00	252	180	0.16	0.0	0.0	0.0	
2(1)_L3	L3	8.50	Platform	8.72	1.03	B	1.00	104	542	58	473	4	896	640	0.74	2.00	252	180	0.64	0.0	0.0	0.0	
2(2)_L3	L3	10.00	Platform	8.72	0.87	B	1.00	104	542	58	473	4	896	640	0.74	2.00	252	180	0.64	0.0	0.0	0.0	
4(1)_L3	L3	12.00	Platform	8.72	0.73	B	1.00	95	502	53	436	3	686	490	0.89	2.00	252	180	0.59	0.0	0.0	0.0	
4(2)_L3	L3	10.00	Platform	8.72	0.87	B	1.00	95	502	53	436	3	686	490	0.89	2.00	252	180	0.59	0.0	0.0	0.0	
5(1)_L3	L3	12.00	Platform	8.72	0.73	B	1.00	64	339	36	285	2	490	350	0.81	2.00	252	180	0.40	0.0	0.0	0.0	
5(2)_L3	L3	10.00	Platform	8.72	0.87	B	1.00	64	339	36	285	2	490	350	0.81	2.00	252	180	0.40	0.0	0.0	0.0	
6(1)_L3	L3	12.00	Platform	8.72	0.73	B	1.00	67	343	48	387	3	686	490	0.79	2.00	252	180	0.53	0.0	0.0	0.0	
6(2)_L3	L3	7.00	Platform	8.72	1.25	B	1.00	67	343	48	387	3	686	490	0.79	2.00	252	180	0.53	0.0	0.0	0.0	
6(3)_L3	L3	8.67	Platform	8.72	1.01	B	1.00	67	343	48	387	3	686	490	0.79	2.00	252	180	0.53	0.0	0.0	0.0	
7(1)_L3	L3	8.83	**CMU**	8.72	0.99	**CMU**	**CMU**	53	230	57	356	**CMU**	**CMU**	**CMU**	**N/A**	2.00	252	180	0.63	0.0	0.0	0.0	
7(2)_L3	L3	12.00	Platform	8.72	0.73	B	1.00	53	230	57	356	3	686	490	0.73	2.00	252	180	0.63	0.0	0.0	0.0	
7(3)_L3	L3	9.50	Platform	8.72	0.92	B	1.00	53	230	57	356	3	686	490	0.73	2.00	252	180	0.63	0.0	0.0	0.0	
8(1)_L3	L3	12.00	Platform	8.72	0.73	B	1.00	33	213	31	347	3	686	490	0.71	2.00	252	180	0.34	0.0	0.0	0.0	
8(2)_L3	L3	12.00	Platform	8.72	0.73	B	1.00	33	213	31	347	3	686	490	0.71	2.00	252	180	0.34	0.0	0.0	0.0	
8(3)_L3	L3	18.00	Platform	8.72	0.48	B	1.00	33	213	31	347	3	686	490	0.71	2.00	252	180	0.34	0.0	0.0	0.0	
8(4)_L3	L3	9.00	Platform	8.72	0.97	B	1.00	33	213	31	347	3	686	490	0.71	2.00	252	180	0.34	0.0	0.0	0.0	
9(1)_L3	L3	6.00	Type 3	10.18	1.70	B	1.00	57	218	52	335	3	686	490	0.68	2.00	252	180	0.58	0.0	0.0	0.0	
9(2)_L3	L3	6.00	Type 3	10.18	1.70	B	1.00	57	218	52	335	3	686	490	0.68	2.00	252	180	0.58	0.0	0.0	0.0	
9(3)_L3	L3	6.00	Type 3	10.18	1.70	B	1.00	57	218	52	335	3	686	490	0.68	2.00	252	180	0.58	0.0	0.0	0.0	
9(4)_L3	L3	6.00	Type 3	10.18	1.70	B	1.00	57	218	52	335	3	686	490	0.68	2.00	252	180	0.58	0.0	0.0	0.0	
A(1)_L3	L3	6.50	Type 3	10.18	1.57	B	1.00	83	412	43	351	3	686	490	0.72	2.00	252	180	0.48	0.0	0.0	0.0	
A(2)_L3	L3	7.25	Type 3	10.18	1.40	B	1.00	83	412	43	351	3	686	490	0.72	2.00	252	180	0.48	0.0	0.0	0.0	
B.2(1)_L3	L3	16.00	Platform	8.72	0.54	B	1.00	118	584	62	481	4	896	640	0.75	2.00	252	180	0.69	0.0	0.0	0.0	
B.7(1)_L3	L3	12.00	Platform	8.72	0.73	B	1.00	104	513	64	496	4	896	640	0.77	2.00	252	180	0.71	0.0	0.0	0.0	
C.3(1)_L3	L3	8.00	Platform	8.72	1.09	B	1.00	71	373	65	347	3	686	490	0.71	2.00	252	180	0.72	0.0	0.0	0.0	
C.3(2)_L3	L3	7.00	Platform	8.72	1.25	B	1.00	71	373	65	347	3	686	490	0.71	2.00	252	180	0.72	0.0	0.0	0.0	
C.6(1)_L3	L3	9.83	**CMU**	8.72	0.89	**CMU**	**CMU**	67	350	71	562	**CMU**	**CMU**	**CMU**	**N/A**	2.00	252	180	0.79	0.0	0.0	0.0	
C.6(2)_L3	L3	11.33	Platform	8.72	0.77	B	1.00	67	350	71	562	4	896	640	0.88	2.00	252	180	0.79	0.0	0.0	0.0	
E(1)_L3	L3	16.00	Platform	8.72	0.54	U	1.00	21	85	22	144	1	218	156	0.92	2.00	252	180	0.25	0.0	0.0	0.0	
E(2)_L3	L3	14.00	Platform	8.72	0.62	U	1.00	21	85	22	144	1	218	156	0.92	2.00	252	180	0.25	0.0	0.0	0.0	
E(3)_L3	L3	10.00	Platform	8.72	0.87	U	1.00	21	85	22	144	1	218	156	0.92	2.00	252	180	0.25	0.0	0.0	0.0	
F(1)_L3	L3	8.00	Platform	8.72	1.09	B	1.00	43	199	45	436	3	686	490	0.89	2.00	252	180	0.50	0.0	0.0	0.0	
F(2)_L3	L3	34.00	Platform	8.72	0.26	B	1.00	43	199	45	436	3	686	490	0.89	2.00	252	180	0.50	0.0	0.0	0.0	
G(1)_L3	L3	7.50	Type 3	10.18	1.36	B	1.00	43	174	45	377	3	686	490	0.77	2.00	252	180	0.51	0.0	0.0	0.0	
G(2)_L3	L3	7.50	Type 3	10.18	1.36	B	1.00	43	174	45	377	3	686	490	0.77	2.00	252	180	0.51	0.0	0.0	0.0	
G(3)_L3	L3	6.00	Type 3	10.18	1.70	B	1.00	43	174	45	377	3	686	490	0.77	2.00	252	180	0.51	0.0	0.0	0.0	
G(4)_L3	L3	6.00	Type 3	10.18	1.70	B	1.00	43	174	45	377	3	686	490	0.77	2.00	252	180	0.51	0.0	0.0	0.0	
G(5)_L3	L3	7.50	Type 3	10.18	1.36	B	1.00	43	174	45	377	3	686	490	0.77	2.00	252	180	0.51	0.0	0.0	0.0	

KL&A Engineers & Builders

Title	Basecamp Phase II	Date	3 5 26	Job No.	25336
Subject	Wall Shear & Diaphragm Design	By	APS	Sheet	

Level	Story Height		Framing Depth		Wall Height	
	Elev [ft]	Height [ft]	Type 3 [in]	Platform [in]	Type 3 [ft]	Platform [ft]
HR	58.833	6.229	3.75	18.042	5.917	4.726
MR	52.604	10.646	3.75	23.125	10.333	8.719
L5	41.958	10.490	3.75	21.25	10.177	8.719
L4	31.469	10.490	3.75	21.25	10.177	8.719
L3	20.979	10.490	3.75	21.25	10.177	8.719
L2	10.490	10.490	3.75	21.25	10.177	8.719

Maximum H/L Ratios	
Unblocked	2
Blocked	3.5

Sheathing Type	Allowable Shear Wall Capacities [plf]		Seismic Diaphragm Amplification Factors		Allowable Diaphragm Capacity [plf]	
	Wind	Seismic	Level	Factor	Wind	Seismic
1	218.4	156	HR	1.00	252	180
2	490	350	MR	1.05		
3	686	490	L5	1.18		
4	896	640	L4	1.40		
5	1792	1280	L3	2.00		
			L2	4.00		

Name Key: Grid(Shear Wall #)_Level

Shear Wall Mark	Level	Wall Pier Length [ft]	Framing Type	Wall Height [ft]	H/L Ratio	Blocked/ Unblocked?	H/L Factor	Wind Demand (Allowable)		Seismic Demand (Allowable)		Sheathing Type	Wall Sheathing Capacity (Allowable)		Max Shear Wall D/C	EL Diaph Amplf'n Factor	Diaphragm Sheathing Capacity (Allowable)		Max Diaphragm D/C	Diaphragm Collector Force		Max Collector Length [ft]	Diaphragm D/C Notes
								Level [plf]	Cumulative [plf]	Level [plf]	Cumulative [plf]		Wind [plf]	Seismic [plf]			Wind [plf]	Seismic [plf]		Wind [lbs]	Seismic [lbs]		
1(1)_L2	L2	10.00	Type 3	10.18	1.02	U	1.00	24	169	7	135	1	218	156	0.87	4.00	252	180	0.16	0.0	0.0	0.0	
1(2)_L2	L2	10.00	Type 3	10.18	1.02	U	1.00	24	169	7	135	1	218	156	0.87	4.00	252	180	0.16	0.0	0.0	0.0	
2(1)_L2	L2	8.50	Platform	8.72	1.03	B	1.00	95	637	28	501	4	896	640	0.78	4.00	252	180	0.63	0.0	0.0	0.0	
2(2)_L2	L2	10.00	Platform	8.72	0.87	B	1.00	95	637	28	501	4	896	640	0.78	4.00	252	180	0.63	0.0	0.0	0.0	
4(1)_L2	L2	12.00	Platform	8.72	0.73	B	1.00	87	588	26	462	3	686	490	0.94	4.00	252	180	0.57	0.0	0.0	0.0	
4(2)_L2	L2	10.00	Platform	8.72	0.87	B	1.00	87	588	26	462	3	686	490	0.94	4.00	252	180	0.57	0.0	0.0	0.0	
5(1)_L2	L2	12.00	Platform	8.72	0.73	B	1.00	59	397	17	303	2	490	350	0.86	4.00	252	180	0.39	0.0	0.0	0.0	
5(2)_L2	L2	10.00	Platform	8.72	0.87	B	1.00	59	397	17	303	2	490	350	0.86	4.00	252	180	0.39	0.0	0.0	0.0	
6(1)_L2	L2	12.00	Platform	8.72	0.73	B	1.00	61	404	26	413	3	686	490	0.84	4.00	252	180	0.58	0.0	0.0	0.0	
6(2)_L2	L2	7.00	Platform	8.72	1.25	B	1.00	61	404	26	413	3	686	490	0.84	4.00	252	180	0.58	0.0	0.0	0.0	
6(3)_L2	L2	8.67	Platform	8.72	1.01	B	1.00	61	404	26	413	3	686	490	0.84	4.00	252	180	0.58	0.0	0.0	0.0	
7(1)_L2	L2	8.83	CMU	8.72	0.99	CMU	CMU	48	279	29	384	CMU	CMU	CMU	N/A	4.00	252	180	0.64	0.0	0.0	0.0	
7(2)_L2	L2	12.00	Platform	8.72	0.73	B	1.00	48	279	29	384	3	686	490	0.78	4.00	252	180	0.64	0.0	0.0	0.0	
7(3)_L2	L2	9.50	Platform	8.72	0.92	B	1.00	48	279	29	384	3	686	490	0.78	4.00	252	180	0.64	0.0	0.0	0.0	
8(1)_L2	L2	12.00	Platform	8.72	0.73	B	1.00	30	243	15	362	3	686	490	0.74	4.00	252	180	0.34	0.0	0.0	0.0	
8(2)_L2	L2	12.00	Platform	8.72	0.73	B	1.00	30	243	15	362	3	686	490	0.74	4.00	252	180	0.34	0.0	0.0	0.0	
8(3)_L2	L2	18.00	Platform	8.72	0.48	B	1.00	30	243	15	362	3	686	490	0.74	4.00	252	180	0.34	0.0	0.0	0.0	
8(4)_L2	L2	9.00	Platform	8.72	0.97	B	1.00	30	243	15	362	3	686	490	0.74	4.00	252	180	0.34	0.0	0.0	0.0	
9(1)_L2	L2	6.00	Type 3	10.18	1.70	B	1.00	52	270	26	361	3	686	490	0.74	4.00	252	180	0.57	0.0	0.0	0.0	
9(2)_L2	L2	6.00	Type 3	10.18	1.70	B	1.00	52	270	26	361	3	686	490	0.74	4.00	252	180	0.57	0.0	0.0	0.0	
9(3)_L2	L2	6.00	Type 3	10.18	1.70	B	1.00	52	270	26	361	3	686	490	0.74	4.00	252	180	0.57	0.0	0.0	0.0	
9(4)_L2	L2	6.00	Type 3	10.18	1.70	B	1.00	52	270	26	361	3	686	490	0.74	4.00	252	180	0.57	0.0	0.0	0.0	
A(1)_L2	L2	6.50	Type 3	10.18	1.57	B	1.00	77	489	30	381	3	686	490	0.78	4.00	252	180	0.68	0.0	0.0	0.0	
A(2)_L2	L2	7.25	Type 3	10.18	1.40	B	1.00	77	489	30	381	3	686	490	0.78	4.00	252	180	0.68	0.0	0.0	0.0	
B.2(1)_L2	L2	16.00	Platform	8.72	0.54	B	1.00	110	693	32	513	4	896	640	0.80	4.00	252	180	0.71	0.0	0.0	0.0	
B.7(1)_L2	L2	12.00	Platform	8.72	0.73	B	1.00	96	609	33	529	4	896	640	0.83	4.00	252	180	0.74	0.0	0.0	0.0	
C.3(1)_L2	L2	8.00	Platform	8.72	1.09	B	1.00	66	444	32	353	3	686	490	0.72	4.00	252	180	0.71	0.0	0.0	0.0	
C.3(2)_L2	L2	7.00	Platform	8.72	1.25	B	1.00	66	444	32	353	3	686	490	0.72	4.00	252	180	0.71	0.0	0.0	0.0	
C.6(1)_L2	L2	9.83	CMU	8.72	0.89	CMU	CMU	62	412	35	597	CMU	CMU	CMU	N/A	4.00	252	180	0.78	0.0	0.0	0.0	
C.6(2)_L2	L2	11.33	Platform	8.72	0.77	B	1.00	62	412	35	597	4	896	640	0.93	4.00	252	180	0.78	0.0	0.0	0.0	
E(1)_L2	L2	16.00	Platform	8.72	0.54	B	1.00	20	105	11	154	2	490	350	0.44	4.00	252	180	0.24	0.0	0.0	0.0	
E(2)_L2	L2	14.00	Platform	8.72	0.62	B	1.00	20	105	11	154	2	490	350	0.44	4.00	252	180	0.24	0.0	0.0	0.0	
E(3)_L2	L2	10.00	Platform	8.72	0.87	B	1.00	20	105	11	154	2	490	350	0.44	4.00	252	180	0.24	0.0	0.0	0.0	
F(1)_L2	L2	8.00	Platform	8.72	1.09	B	1.00	40	239	22	458	3	686	490	0.93	4.00	252	180	0.49	0.0	0.0	0.0	
F(2)_L2	L2	34.00	Platform	8.72	0.26	B	1.00	40	239	22	458	3	686	490	0.93	4.00	252	180	0.49	0.0	0.0	0.0	
G(1)_L2	L2	7.50	Type 3	10.18	1.36	B	1.00	40	214	22	400	3	686	490	0.82	4.00	252	180	0.49	0.0	0.0	0.0	
G(2)_L2	L2	7.50	Type 3	10.18	1.36	B	1.00	40	214	22	400	3	686	490	0.82	4.00	252	180	0.49	0.0	0.0	0.0	
G(3)_L2	L2	6.00	Type 3	10.18	1.70	B	1.00	40	214	22	400	3	686	490	0.82	4.00	252	180	0.49	0.0	0.0	0.0	
G(4)_L2	L2	6.00	Type 3	10.18	1.70	B	1.00	40	214	22	400	3	686	490	0.82	4.00	252	180	0.49	0.0	0.0	0.0	
G(5)_L2	L2	7.50	Type 3	10.18	1.36	B	1.00	40	214	22	400	3	686	490	0.82	4.00	252	180	0.49	0.0	0.0	0.0	

KL&A Engineers & Builders

Title	Basecamp Phase II	Date	3 5 26	Job No.	25336
Subject	Shear Wall Overturning Demands	By	APS	Sheet	

Flat Load Cases	Type	Dead [psf]	Live [psf]	Roof Live [psf]	Snow [psf]	Wall Load Cases	Type	Dead [psf]
1	Floor	42	40	0	0	1	Int 2x Brg	10
2	Balcony	46	60	0	0	2	Ext 2x Brng	16
3	Roof	27	0	20	104	3	CMU Core	78
4	Exit Ways	41	100	0	0	4		
5	Loft	30	40	0	0	5		

Name Key: Grid(Shear Wall #)_Level

Shear Wall Mark	Flat Load Case	Roof/ Floor Trib Width to Wall [ft]	Wall Pier Length [ft]	Story Height [ft]	Wall Height [ft]	0.6x Flat DL		Wall Load Case	0.6x Wall DL		M_{resist} ($0.6M_{DL}$)	Wind Demand (0.6WL)		Seismic Demand (0.7EL)		Wind $M_{overturn}$ ($0.6M_{WL}$)	Seismic $M_{overturn}$ ($0.7M_{EL}$)	Max M_{net}
						Area Load [psf]	Line Load [plf]		Area Load [psf]	Line Load [plf]	[k-ft]	Level [kips]	Cumulative [kips]	Level [kips]	Cumulative [kips]	[kip-ft]	[kip-ft]	[kip-ft]
1(1)_HR	3	7.00	10.00	6.23	7.00	16.20	113.4	2	9.6	67.2	9.03	0.462	0.462	0.767	0.767	2.877	4.775	-4.255
1(1)_MR	5	5.00	10.00	10.65	10.33	18.00	90.0	2	9.6	99.2	18.49	0.339	0.570	0.219	0.602	11.400	15.263	-3.227
1(1)_L5	1	5.00	10.00	10.49	10.18	25.20	126.0	2	9.6	97.7	29.68	0.323	0.893	0.305	0.907	23.188	28.793	-0.882
1(1)_L4	1	5.00	10.00	10.49	10.18	25.20	126.0	2	9.6	97.7	40.86	0.289	1.182	0.223	1.130	38.008	44.663	3.803
1(1)_L3	1	5.00	10.00	10.49	10.18	25.20	126.0	2	9.6	97.7	52.05	0.267	1.449	0.148	1.278	55.629	62.086	10.041
1(1)_L2	1	5.00	10.00	10.49	10.18	25.20	126.0	2	9.6	97.7	63.23	0.244	1.693	0.072	1.350	75.808	80.268	17.038
1(2)_MR	3	1.00	10.00	10.65	8.72	16.20	16.2	2	9.6	83.7	5.00	0.339	0.570	0.219	0.602	3.606	2.327	-1.389
1(2)_L5	1	5.00	10.00	10.49	10.18	25.20	126.0	2	9.6	97.7	16.18	0.323	0.893	0.305	0.907	10.549	7.815	-5.631
1(2)_L4	1	5.00	10.00	10.49	10.18	25.20	126.0	2	9.6	97.7	27.37	0.289	1.182	0.223	1.130	20.524	15.645	-6.841
1(2)_L3	1	5.00	10.00	10.49	10.18	25.20	126.0	2	9.6	97.7	38.55	0.267	1.449	0.148	1.278	33.300	25.026	-5.250
1(2)_L2	1	5.00	10.00	10.49	10.18	25.20	126.0	2	9.6	97.7	49.74	0.244	1.693	0.072	1.350	48.635	35.167	-1.100
2(1)_HR	3	6.00	8.50	6.23	13.50	16.20	97.2	1	6.0	81.0	6.44	1.459	1.459	1.756	1.756	9.090	10.938	4.500
2(1)_MR	5	0.00	8.50	10.65	8.72	18.00	0.0	1	6.0	52.3	8.33	1.019	1.689	0.971	1.777	35.470	39.963	31.636
2(1)_L5	1	10.00	8.50	10.49	8.72	25.20	252.0	1	6.0	52.3	19.32	1.073	2.762	1.011	2.788	72.715	79.169	59.848
2(1)_L4	1	10.00	8.50	10.49	8.72	25.20	252.0	1	6.0	52.3	30.31	0.960	3.722	0.741	3.529	120.031	126.142	95.828
2(1)_L3	1	10.00	8.50	10.49	8.72	25.20	252.0	1	6.0	52.3	41.31	0.886	4.609	0.491	4.020	176.647	178.267	136.959
2(1)_L2	1	10.00	8.50	10.49	8.72	25.20	252.0	1	6.0	52.3	52.30	0.810	5.418	0.240	4.260	241.757	232.912	189.456
2(2)_MR	3	2.00	10.00	10.65	8.72	16.20	32.4	1	6.0	52.3	4.24	1.199	1.987	1.142	2.091	12.759	12.155	8.524
2(2)_L5	1	10.00	10.00	10.49	8.72	25.20	252.0	1	6.0	52.3	19.45	1.262	3.249	1.190	3.281	38.569	36.610	19.118
2(2)_L4	1	10.00	10.00	10.49	8.72	25.20	252.0	1	6.0	52.3	34.67	1.130	4.379	0.871	4.152	76.228	70.204	41.561
2(2)_L3	1	10.00	10.00	10.49	8.72	25.20	252.0	1	6.0	52.3	49.88	1.043	5.422	0.578	4.729	124.826	109.857	74.944
2(2)_L2	1	10.00	10.00	10.49	8.72	25.20	252.0	1	6.0	52.3	65.10	0.953	6.375	0.283	5.012	183.419	152.477	118.321
4(1)_HR	3	1.00	12.00	6.23	14.00	16.20	16.2	1	6.0	84.0	7.21	1.591	1.591	1.914	1.914	9.911	11.925	4.711
4(1)_MR	5	0.00	12.00	10.65	8.72	18.00	0.0	1	6.0	52.3	10.98	1.402	2.270	1.302	2.346	41.778	46.164	35.183
4(1)_L5	1	12.00	12.00	10.49	8.72	25.20	302.4	1	6.0	52.3	36.52	1.378	3.648	1.300	3.646	87.630	93.540	57.020
4(1)_L4	1	12.00	12.00	10.49	8.72	25.20	302.4	1	6.0	52.3	62.06	1.233	4.881	0.952	4.599	146.419	150.905	88.846
4(1)_L3	1	12.00	12.00	10.49	8.72	25.20	302.4	1	6.0	52.3	87.60	1.139	6.020	0.631	5.230	217.151	214.894	129.552
4(1)_L2	1	12.00	12.00	10.49	8.72	25.20	302.4	1	6.0	52.3	113.14	1.040	7.060	0.309	5.539	298.795	282.125	185.656
4(2)_MR	3	2.00	10.00	10.65	8.72	16.20	32.4	1	6.0	52.3	4.24	1.169	1.892	1.085	1.955	12.441	11.548	8.205
4(2)_L5	1	10.00	10.00	10.49	8.72	25.20	252.0	1	6.0	52.3	19.45	1.148	3.040	1.084	3.039	36.744	34.294	17.292
4(2)_L4	1	10.00	10.00	10.49	8.72	25.20	252.0	1	6.0	52.3	34.67	1.028	4.068	0.794	3.832	71.826	65.363	37.159
4(2)_L3	1	10.00	10.00	10.49	8.72	25.20	252.0	1	6.0	52.3	49.88	0.949	5.017	0.526	4.358	116.862	101.953	66.980
4(2)_L2	1	10.00	10.00	10.49	8.72	25.20	252.0	1	6.0	52.3	65.10	0.867	5.883	0.258	4.616	170.991	141.244	105.893
5(1)_HR	3	1.00	12.00	6.23	14.00	16.20	16.2	1	6.0	84.0	7.21	1.000	1.000	1.204	1.204	6.229	7.499	0.285
5(1)_MR	5	0.00	12.00	10.65	8.72	18.00	0.0	1	6.0	52.3	10.98	0.979	1.524	0.811	1.467	27.295	28.944	17.963
5(1)_L5	1	11.00	12.00	10.49	8.72	25.20	277.2	1	6.0	52.3	34.71	0.933	2.458	0.882	2.349	57.843	59.323	24.617
5(1)_L4	1	11.00	12.00	10.49	8.72	25.20	277.2	1	6.0	52.3	58.43	0.835	3.293	0.646	2.995	97.155	96.475	38.724
5(1)_L3	1	11.00	12.00	10.49	8.72	25.20	277.2	1	6.0	52.3	82.16	0.771	4.065	0.428	3.423	144.559	138.118	62.404
5(1)_L2	1	11.00	12.00	10.49	8.72	25.20	277.2	1	6.0	52.3	105.88	0.705	4.769	0.210	3.632	199.355	181.959	93.475
5(2)_MR	3	2.00	10.00	10.65	8.72	16.20	32.4	1	6.0	52.3	4.24	0.816	1.270	0.675	1.223	8.683	7.191	4.447
5(2)_L5	1	11.00	10.00	10.49	8.72	25.20	277.2	1	6.0	52.3	20.71	0.778	2.048	0.735	1.957	25.399	21.983	4.687
5(2)_L4	1	11.00	10.00	10.49	8.72	25.20	277.2	1	6.0	52.3	37.19	0.696	2.744	0.538	2.495	49.417	42.420	12.230
5(2)_L3	1	11.00	10.00	10.49	8.72	25.20	277.2	1	6.0	52.3	53.66	0.643	3.387	0.357	2.852	80.179	66.599	26.517
5(2)_L2	1	11.00	10.00	10.49	8.72	25.20	277.2	1	6.0	52.3	70.14	0.587	3.974	0.175	3.027	117.101	92.610	46.963
6(1)_HR	3	1.00	12.00	6.23	14.00	16.20	16.2	1	6.0	84.0	7.21	1.646	1.646	1.980	1.980	10.254	12.334	5.119
6(1)_MR	5	0.00	12.00	10.65	8.72	18.00	0.0	1	6.0	52.3	10.98	0.770	1.484	1.180	2.039	35.974	45.979	34.998
6(1)_L5	1	10.00	12.00	10.49	8.72	25.20	252.0	1	6.0	52.3	32.89	0.968	2.452	1.175	3.214	71.473	91.452	58.560
6(1)_L4	1	10.00	12.00	10.49	8.72	25.20	252.0	1	6.0	52.3	54.80	0.867	3.319	0.860	4.074	116.065	145.948	91.146
6(1)_L3	1	10.00	12.00	10.49	8.72	25.20	252.0	1	6.0	52.3	76.71	0.800	4.119	0.570	4.645	169.050	206.429	129.716
6(1)_L2	1	10.00	12.00	10.49	8.72	25.20	252.0	1	6.0	52.3	98.62	0.731	4.850	0.311	4.956	229.704	270.173	171.550
6(2)_MR	5	5.00	7.00	10.65	8.72	18.00	90.0	1	6.0	52.3	3.49	0.449	0.866	0.689	1.190	4.780	7.330	3.843
6(2)_L5	1	10.00	7.00	10.49	8.72	25.20	252.0	1	6.0	52.3	10.94	0.565	1.430	0.685	1.875	15.416	21.740	10.798
6(2)_L4	1	10.00	7.00	10.49	8.72	25.20	252.0	1	6.0	52.3	18.40	0.506	1.936	0.502	2.377	31.355	41.414	23.016
6(2)_L3	1	10.00	7.00	10.49	8.72	25.20	252.0	1	6.0	52.3	25.85	0.467	2.403	0.333	2.709	52.190	64.579	38.725
6(2)_L2	1	10.00	7.00	10.49	8.72	25.20	252.0	1	6.0	52.3	33.31	0.426	2.829	0.182	2.891	77.499	89.648	56.338
6(3)_MR	3	14.00	8.67	10.65	8.72	16.20	226.8	1	6.0	52.3	10.48	0.556	1.072	0.852	1.473	5.919	9.075	-1.407
6(3)_L5	1	6.00	8.67	10.49	8.72	25.20	151.2	1	6.0	52.3	18.13	0.699	1.771	0.848	2.321	19.086	26.917	8.791
6(3)_L4	1	6.00	8.67	10.49	8.72	25.20	151.2	1	6.0	52.3	25.77	0.626	2.397	0.621	2.942	38.820	51.275	25.507
6(3)_L3	1	6.00	8.67	10.49	8.72	25.20	151.2	1	6.0	52.3	33.41	0.578	2.975	0.412	3.354	64.616	79.955	46.544
6(3)_L2	1	6.00	8.67	10.49	8.72	25.20	151.2	1	6.0	52.3	41.05	0.528	3.503	0.225	3.579	95.951	110.992	69.938
7(1)_HR	3	4.00	8.83	6.23	4.73	16.20	64.8	3	46.8	221.3	11.16	0.336	0.336	0.240	0.240	2.093	1.498	-9.070
7(1)_MR	3	3.00	8.83	10.65	8.72	16.20	48.6	3	46.8	408.0	28.98	0.392	0.490	0.773	0.843	9.843	12.285	-16.693
7(1)_L5	1	3.50	8.83	10.49	8.72	25.20	88.2	3	46.8	408.0	48.34	0.567	1.057	1.036	1.879	23.426	33.784	-14.554
7(1)_L4	1	3.50	8.83	10.49	8.72	25.20	88.2	3	46.8	408.0	67.70	0.507	1.564	0.759	2.638	42.332	63.245	-4.453
7(1)_L3	1	3.50	8.83	10.49	8.72	25.20	88.2	3	46.8	408.0	87.06	0.469	2.033	0.503	3.141	66.153	97.986	10.927
7(1)_L2	1	3.50	8.83	10.49	8.72	25.20	88.2	3	46.8	408.0	106.42	0.428	2.461	0.253	3.394	94.464	135.377	28.959
7(2)_MR	3	16.00	12.00	10.65	8.72	16.20	259.2	1	6.0	52.3	22.43	0.532	0.665	1.050	1.145	5.669	11.175	-11.254
7(2)_L5	1	4.50	12.00	10.49	8.72	25.20	113.4	1	6.0	52.3	34.36	0.770	1.436	1.408	2.553	19.334	36.955	2.595
7(2)_L4	1	4.50	12.00	10.49	8.72	25.20	113.4	1	6.0	52.3	46.29	0.689	2.125	1.031	3.584	40.230	73.550	27.259
7(2)_L3	1	4.50	12.00	10.49	8.72	25.20	113.4	1	6.0	52.3	58.22	0.636	2.761	0.684	4.268	67.802	117.318	59.095
7(2)_L2	1	4.50	12.00	10.49	8.72	25.20	113.4	1	6.0	52.3	70.15	0.581	3.343	0.343	4.611	101.474	164.687	94.533
7(3)_MR	3	16.00	9.50	10.65	8.72	16.20	259.2	1	6.0	52.3	14.06	0.422	0.527	0.831	0.906	4.488	8.847	-5.210
7(3)_L5	1	2.00	9.50	10.49	8.72	25.20	50.4	1	6.0	52.3	18.69	0.610	1.137	1.115	2.021	15.306	29.256	10.564
7(3)_L4	1	2.00	9.50	10.49	8.72	25.20	50.4	1	6.0	52.3	23.33	0.546	1.682	0.816	2.837	31.848	58.227	34.901
7(3)_L3	1	2.00	9.50	10.49	8.72	25.20	50.4	1	6.0	52.3	27.96	0.504	2.186	0.541	3.379	53.677	92.877	64.915
7(3)_L2	1	2.00	9.50	10.49	8.72	25.20	50.4	1	6.0	52.3	32.60	0.460	2.647	0.272	3.650	80.334	130.377	97.780
8(1)_HR	3	1.00	12.00	6.23	14.00	16.20	16.2	1	6.0	84.0	7.21	3.318	3.318	4.186	4.186	20.666	26.072	18.858
8(1)_MR	5	0.00	12.00	10.65	8.72	18.00	0.0	1	6.0	52.3	10.98	0.211	1.232	0.756	2.471	58.233	78.676	67.695
8(1)_L5	1	6.00	12.00	10.49	8.72	25.20	151.2	1	6.0	52.3	25.63	0.485	1.716	0.761	3.232	100.333	138.489	112.855
8(1)_L4	1	6.00	12.00	10.49	8.72	25.20	151.2	1	6.0	52.3	40.29	0.434	2.150	0.557	3.789	146.983	204.146	163.860
8(1)_L3	1	6.00	12.00	10.49	8.72	25.20	151.2	1	6.0	52.3	54.94	0.401	2.551	0.370	4.159	197.836	273.680	218.740
8(1)_L2	1	6.00	12.00	10.49	8.72	25.20	151.2	1	6.0	52.3	69.59	0.366	2.917	0.185	4.343	252.528	345.150	275.557

Flat Load Cases	Type	Dead [psf]	Live [psf]	Roof Live [psf]	Snow [psf]	Wall Load Cases	Type	Dead [psf]
1	Floor	42	40	0	0	1	Int 2x Brg	10
2	Balcony	46	60	0	0	2	Ext 2x Brng	16
3	Roof	27	0	20	104	3	CMU Core	78
4	Exit Ways	41	100	0	0	4		
5	Loft	30	40	0	0	5		

Name Key: Grid(Shear Wall #)_Level

Shear Wall Mark	Flat Load Case	Roof/ Floor Trib Width to Wall [ft]	Wall Pier Length [ft]	Story Height [ft]	Wall Height [ft]	0.6x Flat DL		Wall Load Case	0.6x Wall DL		M_{resist} ($0.6M_{DL}$)	Wind Demand (0.6WL)		Seismic Demand (0.7EL)		Wind $M_{overturn}$ ($0.6M_{WL}$)	Seismic $M_{overturn}$ ($0.7M_{EL}$)	Max M_{net}
						Area Load [psf]	Line Load [plf]		Area Load [psf]	Line Load [plf]	[k-ft]	Level [kips]	Cumulative [kips]	Level [kips]	Cumulative [kips]	[kip-ft]	[kip-ft]	[kip-ft]
8(2)_HR	3	7.00	12.00	6.23	6.50	16.20	113.4	2	9.6	62.4	12.66	0.314	0.314	0.955	0.955	1.955	5.951	-6.707
8(2)_MR	3	3.50	12.00	10.65	8.72	16.20	56.7	1	6.0	52.3	20.51	0.211	1.232	0.756	2.471	7.544	24.166	3.659
8(2)_L5	1	4.50	12.00	10.49	8.72	25.20	113.4	1	6.0	52.3	32.44	0.485	1.716	0.761	3.232	18.135	50.095	17.657
8(2)_L4	1	4.50	12.00	10.49	8.72	25.20	113.4	1	6.0	52.3	44.37	0.434	2.150	0.557	3.789	33.278	81.868	37.499
8(2)_L3	1	4.50	12.00	10.49	8.72	25.20	113.4	1	6.0	52.3	56.30	0.401	2.551	0.370	4.159	52.622	117.518	61.218
8(2)_L2	1	4.50	12.00	10.49	8.72	25.20	113.4	1	6.0	52.3	68.23	0.366	2.917	0.185	4.343	75.805	155.104	86.872
8(3)_HR	3	7.00	18.00	6.23	6.50	16.20	113.4	2	9.6	62.4	28.48	0.471	0.471	1.433	1.433	2.933	8.926	-19.554
8(3)_MR	3	3.50	18.00	10.65	8.72	16.20	56.7	1	6.0	52.3	46.14	0.317	1.848	1.134	3.707	11.316	36.248	-9.891
8(3)_L5	1	4.50	18.00	10.49	8.72	25.20	113.4	1	6.0	52.3	72.99	0.727	2.575	1.141	4.848	27.203	75.142	2.157
8(3)_L4	1	4.50	18.00	10.49	8.72	25.20	113.4	1	6.0	52.3	99.83	0.651	3.226	0.836	5.684	49.916	122.802	22.972
8(3)_L3	1	4.50	18.00	10.49	8.72	25.20	113.4	1	6.0	52.3	126.68	0.601	3.826	0.554	6.238	78.933	176.277	49.601
8(3)_L2	1	4.50	18.00	10.49	8.72	25.20	113.4	1	6.0	52.3	153.52	0.549	4.375	0.277	6.515	113.708	232.656	79.135
8(4)_HR	3	7.00	9.00	6.23	6.50	16.20	113.4	2	9.6	62.4	7.12	0.235	0.235	0.716	0.716	1.466	4.463	-2.657
8(4)_MR	3	3.50	9.00	10.65	8.72	16.20	56.7	1	6.0	52.3	11.53	0.158	0.924	0.567	1.853	5.658	18.124	6.589
8(4)_L5	1	4.50	9.00	10.49	8.72	25.20	113.4	1	6.0	52.3	18.25	0.364	1.287	0.571	2.424	13.601	37.571	19.325
8(4)_L4	1	4.50	9.00	10.49	8.72	25.20	113.4	1	6.0	52.3	24.96	0.325	1.613	0.418	2.842	24.958	61.401	36.444
8(4)_L3	1	4.50	9.00	10.49	8.72	25.20	113.4	1	6.0	52.3	31.67	0.300	1.913	0.277	3.119	39.467	88.139	56.470
8(4)_L2	1	4.50	9.00	10.49	8.72	25.20	113.4	1	6.0	52.3	38.38	0.274	2.188	0.138	3.257	56.854	116.328	77.948
9(1)_HR	3	7.00	6.00	6.23	7.00	16.20	113.4	2	9.6	67.2	3.25	0.000	0.000	0.000	0.000	0.000	0.000	-3.251
9(1)_MR	5	1.00	6.00	10.65	10.33	18.00	18.0	2	9.6	99.2	5.36	0.000	0.765	0.000	2.328	0.000	0.000	-5.360
9(1)_L5	1	1.00	6.00	10.49	10.18	25.20	25.2	2	9.6	97.7	7.57	0.410	0.602	0.644	1.226	4.304	6.755	-0.817
9(1)_L4	1	1.00	6.00	10.49	10.18	25.20	25.2	2	9.6	97.7	9.78	0.367	0.969	0.472	1.698	12.459	18.458	8.673
9(1)_L3	1	1.00	6.00	10.49	10.18	25.20	25.2	2	9.6	97.7	12.00	0.339	1.308	0.313	2.011	24.171	33.441	21.444
9(1)_L2	1	1.00	6.00	10.49	10.18	25.20	25.2	2	9.6	97.7	14.21	0.310	1.618	0.155	2.165	39.132	50.046	35.836
9(2)_HR	3	7.00	6.00	16.88	11.50	16.20	113.4	2	9.6	110.4	4.03	0.255	0.255	0.776	0.776	4.303	13.098	9.069
9(2)_L5	1	1.00	6.00	10.49	10.18	25.20	25.2	2	9.6	97.7	6.24	0.410	0.602	0.644	1.226	11.282	27.995	21.754
9(2)_L4	1	1.00	6.00	10.49	10.18	25.20	25.2	2	9.6	97.7	8.45	0.367	0.969	0.472	1.698	22.112	47.839	39.386
9(2)_L3	1	1.00	6.00	10.49	10.18	25.20	25.2	2	9.6	97.7	10.67	0.339	1.308	0.313	2.011	36.499	70.964	60.299
9(2)_L2	1	1.00	6.00	10.49	10.18	25.20	25.2	2	9.6	97.7	12.88	0.310	1.618	0.155	2.165	54.134	95.709	82.832
9(3)_HR	3	7.00	6.00	16.88	11.50	16.20	113.4	2	9.6	110.4	4.03	0.255	0.255	0.776	0.776	4.303	13.098	9.069
9(3)_L5	1	1.00	6.00	10.49	10.18	25.20	25.2	2	9.6	97.7	6.24	0.410	0.602	0.644	1.226	11.282	27.995	21.754
9(3)_L4	1	1.00	6.00	10.49	10.18	25.20	25.2	2	9.6	97.7	8.45	0.367	0.969	0.472	1.698	22.112	47.839	39.386
9(3)_L3	1	1.00	6.00	10.49	10.18	25.20	25.2	2	9.6	97.7	10.67	0.339	1.308	0.313	2.011	36.499	70.964	60.299
9(3)_L2	1	1.00	6.00	10.49	10.18	25.20	25.2	2	9.6	97.7	12.88	0.310	1.618	0.155	2.165	54.134	95.709	82.832
9(4)_HR	3	7.00	6.00	16.88	11.50	16.20	113.4	2	9.6	110.4	4.03	0.255	0.255	0.776	0.776	4.303	13.098	9.069
9(4)_L5	1	1.00	6.00	10.49	10.18	25.20	25.2	2	9.6	97.7	6.24	0.410	0.602	0.644	1.226	11.282	27.995	21.754
9(4)_L4	1	1.00	6.00	10.49	10.18	25.20	25.2	2	9.6	97.7	8.45	0.367	0.969	0.472	1.698	22.112	47.839	39.386
9(4)_L3	1	1.00	6.00	10.49	10.18	25.20	25.2	2	9.6	97.7	10.67	0.339	1.308	0.313	2.011	36.499	70.964	60.299
9(4)_L2	1	1.00	6.00	10.49	10.18	25.20	25.2	2	9.6	97.7	12.88	0.310	1.618	0.155	2.165	54.134	95.709	82.832
A(1)_MR	3	1.00	6.50	10.65	8.72	16.20	16.2	2	9.6	83.7	2.11	0.404	0.404	0.442	0.442	4.302	4.701	2.590
A(1)_L5	1	5.00	6.50	10.49	10.18	25.20	126.0	2	9.6	97.7	6.84	0.651	1.560	0.578	1.577	15.371	15.399	8.563
A(1)_L4	1	5.00	6.50	10.49	10.18	25.20	126.0	2	9.6	97.7	11.56	0.577	2.137	0.424	2.000	32.492	30.539	20.931
A(1)_L3	1	5.00	6.50	10.49	10.18	25.20	126.0	2	9.6	97.7	16.29	0.539	2.676	0.281	2.281	55.271	48.625	38.984
A(1)_L2	1	5.00	6.50	10.49	10.18	25.20	126.0	2	9.6	97.7	21.01	0.502	3.178	0.198	2.479	83.314	68.790	62.301
A(2)_HR	3	7.00	7.25	6.23	7.00	16.20	113.4	2	9.6	67.2	4.75	1.067	1.067	1.178	1.178	6.648	7.337	2.591
A(2)_MR	5	5.00	7.25	10.65	10.33	18.00	90.0	2	9.6	99.2	9.72	0.451	1.013	0.493	1.114	22.808	25.120	15.401
A(2)_L5	1	5.00	7.25	10.49	10.18	25.20	126.0	2	9.6	97.7	15.60	0.726	1.740	0.645	1.759	46.349	49.408	33.810
A(2)_L4	1	5.00	7.25	10.49	10.18	25.20	126.0	2	9.6	97.7	21.48	0.644	2.383	0.472	2.231	76.642	78.651	57.174
A(2)_L3	1	5.00	7.25	10.49	10.18	25.20	126.0	2	9.6	97.7	27.36	0.602	2.985	0.313	2.544	113.244	111.180	85.888
A(2)_L2	1	5.00	7.25	10.49	10.18	25.20	126.0	2	9.6	97.7	33.24	0.560	3.545	0.221	2.765	155.718	146.027	122.482
B.2(1)_HR	3	1.00	16.00	6.23	15.00	16.20	16.2	1	6.0	90.0	13.59	1.753	1.753	1.612	1.612	10.922	10.044	-2.672
B.2(1)_MR	5	0.00	16.00	10.65	8.72	18.00	0.0	1	6.0	52.3	20.29	1.411	3.164	1.569	3.182	44.609	43.915	24.319
B.2(1)_L5	1	11.00	16.00	10.49	8.72	25.20	277.2	1	6.0	52.3	62.47	2.274	5.438	2.033	5.215	101.651	98.617	39.184
B.2(1)_L4	1	11.00	16.00	10.49	8.72	25.20	277.2	1	6.0	52.3	104.64	2.015	7.453	1.489	6.704	179.830	168.937	75.185
B.2(1)_L3	1	11.00	16.00	10.49	8.72	25.20	277.2	1	6.0	52.3	146.82	1.883	9.336	0.987	7.691	277.762	249.615	130.940
B.2(1)_L2	1	11.00	16.00	10.49	8.72	25.20	277.2	1	6.0	52.3	189.00	1.752	11.088	0.513	8.204	394.074	335.676	205.074
B.7(1)_HR	3	1.00	12.00	6.23	14.00	16.20	16.2	1	6.0	84.0	7.21	1.149	1.149	1.056	1.056	7.156	6.580	-0.058
B.7(1)_MR	5	0.00	12.00	10.65	8.72	18.00	0.0	1	6.0	52.3	10.98	0.931	2.080	1.403	2.460	29.297	32.765	21.784
B.7(1)_L5	1	10.00	12.00	10.49	8.72	25.20	252.0	1	6.0	52.3	32.89	1.500	3.580	1.573	4.033	66.847	75.070	42.178
B.7(1)_L4	1	10.00	12.00	10.49	8.72	25.20	252.0	1	6.0	52.3	54.80	1.329	4.909	1.152	5.185	118.341	129.461	74.659
B.7(1)_L3	1	10.00	12.00	10.49	8.72	25.20	252.0	1	6.0	52.3	76.71	1.242	6.151	0.764	5.949	182.868	191.867	115.154
B.7(1)_L2	1	10.00	12.00	10.49	8.72	25.20	252.0	1	6.0	52.3	98.62	1.156	7.307	0.400	6.349	259.520	258.468	160.897
C.3(1)_MR	5	10.00	8.00	10.65	8.72	18.00	180.0	1	6.0	52.3	7.43	0.428	0.428	1.268	1.268	4.553	13.498	6.064
C.3(1)_L5	1	10.00	8.00	10.49	8.72	25.20	252.0	1	6.0	52.3	17.17	0.689	1.714	1.070	2.196	16.268	38.018	20.846
C.3(1)_L4	1	10.00	8.00	10.49	8.72	25.20	252.0	1	6.0	52.3	26.91	0.611	2.370	0.783	2.562	34.389	70.754	43.844
C.3(1)_L3	1	10.00	8.00	10.49	8.72	25.20	252.0	1	6.0	52.3	36.65	0.571	2.982	0.519	2.776	58.497	108.939	72.291
C.3(1)_L2	1	10.00	8.00	10.49	8.72	25.20	252.0	1	6.0	52.3	46.39	0.531	3.550	0.254	2.828	88.176	149.792	103.406
C.3(2)_HR	3	1.00	7.00	6.23	15.00	16.20	16.2	1	6.0	90.0	2.60	0.991	0.991	0.910	0.910	6.173	5.669	3.571
C.3(2)_MR	5	0.00	7.00	10.65	8.72	18.00	0.0	1	6.0	52.3	3.88	0.374	0.872	1.109	1.659	20.706	27.168	23.285
C.3(2)_L5	1	10.00	7.00	10.49	8.72	25.20	252.0	1	6.0	52.3	11.34	0.603	1.500	0.936	1.922	41.351	58.169	46.830
C.3(2)_L4	1	10.00	7.00	10.49	8.72	25.20	252.0	1	6.0	52.3	18.79	0.534	2.074	0.685	2.242	67.601	96.360	77.565
C.3(2)_L3	1	10.00	7.00	10.49	8.72	25.20	252.0	1	6.0	52.3	26.25	0.499	2.609	0.455	2.429	99.090	139.318	113.067
C.3(2)_L2	1	10.00	7.00	10.49	8.72	25.20	252.0	1	6.0	52.3	33.71	0.465	3.106	0.223	2.474	135.454	184.611	150.904
C.6(1)_HR	3	1.00	9.83	6.23	4.73	16.20	16.2	3	46.8	221.3	11.48	0.312	0.312	0.240	0.240	1.944	1.498	-9.540
C.6(1)_MR	3	1.00	9.83	10.65	8.72	16.20	16.2	3	46.8	408.0	31.99	0.493	1.286	1.536	2.323	10.517	20.413	-11.581
C.6(1)_L5	1	0.00	9.83	10.49	8.72	25.20	0.0	3	46.8	408.0	51.72	0.795	2.081	1.445	3.768	27.302	54.207	2.485
C.6(1)_L4	1	0.00	9.83	10.49	8.72	25.20	0.0	3	46.8	408.0	71.45	0.704	2.785	1.058	4.826	51.476	99.099	27.650
C.6(1)_L3	1	0.00	9.83	10.49	8.72	25.20	0.0	3	46.8	408.0	91.18	0.658	3.443	0.702	5.527	82.556	151.352	60.175
C.6(1)_L2	1	0.00	9.83	10.49	8.72	25.20	0.0	3	46.8	408.0	110.90	0.613	4.056	0.344	5.871	120.062	207.208	96.304
C.6(2)_HR	3	7.00	11.33	6.23	14.00	16.20	113.4	2	9.6	134.4	15.91	1.394	1.394	1.453	1.453	8.681	9.048	-6.866
C.6(2)_MR	5	0.00	11.33	10.65	8.72	18.00	0.0	1	6.0	52.3	19.27	0.569	1.482	1.771	2.677	29.570	43.362	24.088
C.6(2)_L5	1	10.00	11.33	10.49	8.72	25.20	252.0	1	6.0	52.3	38.82	0.916	2.398	1.665	4.342	59.762	94.639	55.822
C.6(2)_L4	1	10.00	11.33	10.49	8.72	25.20	252.0	1	6.0	52.3	58.36	0.812	3.210	1.220	5.562	98.470	158.709	100.348
C.6(2)_L3	1	10.00	11.33	10.49	8.72	25.20	252.0	1	6.0	52.3	77.90	0.759	3.969	0.809	6.371	145.137	231.262	153.357
C.6(2)_L2	1	10.00	11.33	10.49	8.72	25.20	252.0	1	6.0	52.3	97.45	0.706	4.675	0.396	6.767	199.211	307.968	210.519

Flat Load Cases	Type	Dead [psf]	Live [psf]	Roof Live [psf]	Snow [psf]	Wall Load Cases	Type	Dead [psf]
1	Floor	42	40	0	0	1	Int 2x Brg	10
2	Balcony	46	60	0	0	2	Ext 2x Brng	16
3	Roof	27	0	20	104	3	CMU Core	78
4	Exit Ways	41	100	0	0	4		
5	Loft	30	40	0	0	5		

Name Key: Grid(Shear Wall #)_Level

Shear Wall Mark	Flat Load Case	Roof/ Floor Trib Width to Wall [ft]	Wall Pier Length [ft]	Story Height [ft]	Wall Height [ft]	0.6x Flat DL		Wall Load Case	0.6x Wall DL		M_{resist} ($0.6M_{DL}$)	Wind Demand (0.6WL)		Seismic Demand (0.7EL)		Wind $M_{overturn}$ ($0.6M_{WL}$)	Seismic $M_{overturn}$ ($0.7M_{EL}$)	Max M_{net}
						Area Load [psf]	Line Load [plf]		Area Load [psf]	Line Load [plf]	[k-ft]	Level [kips]	Cumulative [kips]	Level [kips]	Cumulative [kips]	[kip-ft]	[kip-ft]	[kip-ft]
E(1)_MR	3	18.00	16.00	10.65	8.72	16.20	291.6	1	6.0	52.3	44.02	0.254	0.254	0.686	0.686	2.699	7.303	-36.718
E(1)_L5	1	2.00	16.00	10.49	8.72	25.20	50.4	1	6.0	52.3	57.17	0.409	0.662	0.726	1.413	9.644	22.120	-35.048
E(1)_L4	1	2.00	16.00	10.49	8.72	25.20	50.4	1	6.0	52.3	70.32	0.362	1.024	0.532	1.945	20.387	42.517	-27.798
E(1)_L3	1	2.00	16.00	10.49	8.72	25.20	50.4	1	6.0	52.3	83.46	0.338	1.363	0.353	2.297	34.680	66.616	-16.847
E(1)_L2	1	2.00	16.00	10.49	8.72	25.20	50.4	1	6.0	52.3	96.61	0.315	1.677	0.173	2.470	52.275	92.526	-4.084
E(2)_MR	3	18.00	14.00	10.65	8.72	16.20	291.6	1	6.0	52.3	33.70	0.222	0.222	0.600	0.600	2.362	6.390	-27.313
E(2)_L5	1	4.50	14.00	10.49	8.72	25.20	113.4	1	6.0	52.3	49.94	0.357	0.579	0.636	1.236	8.439	19.355	-30.588
E(2)_L4	1	4.50	14.00	10.49	8.72	25.20	113.4	1	6.0	52.3	66.18	0.317	0.896	0.466	1.701	17.839	37.203	-28.980
E(2)_L3	1	4.50	14.00	10.49	8.72	25.20	113.4	1	6.0	52.3	82.42	0.296	1.192	0.309	2.010	30.345	58.289	-24.134
E(2)_L2	1	4.50	14.00	10.49	8.72	25.20	113.4	1	6.0	52.3	98.66	0.275	1.468	0.151	2.161	45.740	80.960	-17.702
E(3)_MR	3	18.00	10.00	10.65	8.72	16.20	291.6	1	6.0	52.3	17.20	0.158	0.158	0.429	0.429	1.687	4.565	-12.631
E(3)_L5	1	4.50	10.00	10.49	8.72	25.20	113.4	1	6.0	52.3	25.48	0.255	0.414	0.454	0.883	6.028	13.825	-11.656
E(3)_L4	1	4.50	10.00	10.49	8.72	25.20	113.4	1	6.0	52.3	33.77	0.226	0.640	0.333	1.215	12.742	26.573	-7.194
E(3)_L3	1	4.50	10.00	10.49	8.72	25.20	113.4	1	6.0	52.3	42.05	0.211	0.852	0.221	1.436	21.675	41.635	-0.418
E(3)_L2	1	4.50	10.00	10.49	8.72	25.20	113.4	1	6.0	52.3	50.34	0.197	1.048	0.108	1.544	32.672	57.829	7.491
F(1)_HR	3	7.00	8.00	6.23	5.00	16.20	113.4	2	9.6	48.0	5.16	0.229	0.229	1.133	1.133	1.424	7.058	1.893
F(1)_MR	3	3.50	8.00	10.65	8.72	16.20	56.7	1	6.0	52.3	8.65	0.242	0.471	0.705	1.838	6.434	26.628	17.975
F(1)_L5	1	4.50	8.00	10.49	8.72	25.20	113.4	1	6.0	52.3	13.96	0.414	0.885	0.743	2.581	15.718	53.700	39.744
F(1)_L4	1	4.50	8.00	10.49	8.72	25.20	113.4	1	6.0	52.3	19.26	0.367	1.252	0.544	3.125	28.853	86.477	67.218
F(1)_L3	1	4.50	8.00	10.49	8.72	25.20	113.4	1	6.0	52.3	24.56	0.343	1.595	0.361	3.485	45.588	123.037	98.475
F(1)_L2	1	4.50	8.00	10.49	8.72	25.20	113.4	1	6.0	52.3	29.86	0.319	1.915	0.177	3.662	65.673	161.448	131.584
F(2)_HR	3	7.00	34.00	6.23	5.00	16.20	113.4	2	9.6	48.0	93.29	0.971	0.971	4.815	4.815	6.051	29.995	-63.294
F(2)_MR	3	3.50	34.00	10.65	8.72	16.20	56.7	1	6.0	52.3	156.30	1.029	2.000	2.998	7.813	27.346	113.168	-43.130
F(2)_L5	1	4.50	34.00	10.49	8.72	25.20	113.4	1	6.0	52.3	252.08	1.761	3.761	3.156	10.969	66.801	228.226	-23.854
F(2)_L4	1	4.50	34.00	10.49	8.72	25.20	113.4	1	6.0	52.3	347.86	1.561	5.322	2.311	13.280	122.626	367.527	19.665
F(2)_L3	1	4.50	34.00	10.49	8.72	25.20	113.4	1	6.0	52.3	443.64	1.459	6.780	1.533	14.813	193.750	522.905	79.261
F(2)_L2	1	4.50	34.00	10.49	8.72	25.20	113.4	1	6.0	52.3	539.43	1.357	8.138	0.750	15.563	279.109	686.155	146.729
G(1)_HR	3	7.00	7.50	16.88	11.50	16.20	113.4	2	9.6	110.4	6.29	0.261	0.261	1.274	1.274	4.402	21.500	15.206
G(1)_L5	1	1.00	7.50	10.49	10.18	25.20	25.2	2	9.6	97.7	9.75	0.386	0.647	0.702	1.976	11.188	42.224	32.473
G(1)_L4	1	1.00	7.50	10.49	10.18	25.20	25.2	2	9.6	97.7	13.21	0.342	0.989	0.514	2.489	21.562	68.336	55.129
G(1)_L3	1	1.00	7.50	10.49	10.18	25.20	25.2	2	9.6	97.7	16.66	0.320	1.309	0.341	2.830	35.290	98.023	81.359
G(1)_L2	1	1.00	7.50	10.49	10.18	25.20	25.2	2	9.6	97.7	20.12	0.297	1.606	0.167	2.997	52.139	129.459	109.338
G(2)_HR	3	7.00	7.50	16.88	11.50	16.20	113.4	2	9.6	110.4	6.29	0.261	0.261	1.274	1.274	4.402	21.500	15.206
G(2)_L5	1	1.00	7.50	10.49	10.18	25.20	25.2	2	9.6	97.7	9.75	0.386	0.647	0.702	1.976	11.188	42.224	32.473
G(2)_L4	1	1.00	7.50	10.49	10.18	25.20	25.2	2	9.6	97.7	13.21	0.342	0.989	0.514	2.489	21.562	68.336	55.129
G(2)_L3	1	1.00	7.50	10.49	10.18	25.20	25.2	2	9.6	97.7	16.66	0.320	1.309	0.341	2.830	35.290	98.023	81.359
G(2)_L2	1	1.00	7.50	10.49	10.18	25.20	25.2	2	9.6	97.7	20.12	0.297	1.606	0.167	2.997	52.139	129.459	109.338
G(3)_HR	3	7.00	6.00	16.88	11.50	16.20	113.4	2	9.6	110.4	4.03	0.209	0.209	1.019	1.019	3.522	17.200	13.172
G(3)_L5	1	1.00	6.00	10.49	10.18	25.20	25.2	2	9.6	97.7	6.24	0.309	0.518	0.561	1.580	8.950	33.779	27.538
G(3)_L4	1	1.00	6.00	10.49	10.18	25.20	25.2	2	9.6	97.7	8.45	0.274	0.791	0.411	1.992	17.250	54.669	46.216
G(3)_L3	1	1.00	6.00	10.49	10.18	25.20	25.2	2	9.6	97.7	10.67	0.256	1.047	0.273	2.264	28.232	78.418	67.753
G(3)_L2	1	1.00	6.00	10.49	10.18	25.20	25.2	2	9.6	97.7	12.88	0.238	1.285	0.133	2.398	41.711	103.567	90.690
G(4)_HR	3	7.00	6.00	16.88	11.50	16.20	113.4	2	9.6	110.4	4.03	0.209	0.209	1.019	1.019	3.522	17.200	13.172
G(4)_L5	1	1.00	6.00	10.49	10.18	25.20	25.2	2	9.6	97.7	6.24	0.309	0.518	0.561	1.580	8.950	33.779	27.538
G(4)_L4	1	1.00	6.00	10.49	10.18	25.20	25.2	2	9.6	97.7	8.45	0.274	0.791	0.411	1.992	17.250	54.669	46.216
G(4)_L3	1	1.00	6.00	10.49	10.18	25.20	25.2	2	9.6	97.7	10.67	0.256	1.047	0.273	2.264	28.232	78.418	67.753
G(4)_L2	1	1.00	6.00	10.49	10.18	25.20	25.2	2	9.6	97.7	12.88	0.238	1.285	0.133	2.398	41.711	103.567	90.690
G(5)_HR	3	12.00	7.50	16.88	11.50	16.20	194.4	2	9.6	110.4	8.57	0.261	0.261	1.274	1.274	4.402	21.500	12.928
G(5)_L5	1	6.00	7.50	10.49	10.18	25.20	151.2	2	9.6	97.7	15.57	0.386	0.647	0.702	1.976	11.188	42.224	26.651
G(5)_L4	1	6.00	7.50	10.49	10.18	25.20	151.2	2	9.6	97.7	22.57	0.342	0.989	0.514	2.489	21.562	68.336	45.763
G(5)_L3	1	6.00	7.50	10.49	10.18	25.20	151.2	2	9.6	97.7	29.57	0.320	1.309	0.341	2.830	35.290	98.023	68.449
G(5)_L2	1	6.00	7.50	10.49	10.18	25.20	151.2	2	9.6	97.7	36.57	0.297	1.606	0.167	2.997	52.139	129.459	92.885

KL&A Engineers & Builders

Title	Basecamp Phase II			Date	3 5 26	Job No.	25336
Subject	Anchor-Rod Boundary A			By	APS	Sheet	

Level	Story Height [ft]	Framing Depth [in]	Stud Height [in]
HR	6.229	17	57.75
MR	10.646	23.125	104.63
L5	10.490	21.25	104.63
L4	10.490	21.25	104.63
L3	10.490	21.25	104.63
L2	10.490	21.25	104.63

Flat Load Cases	Type	Dead [psf]	Live [psf]	Roof Live [psf]	Snow [psf]
1	Floor	42	40	0	0
2	Balcony	46	60	0	0
3	Roof	27	0	20	104
4	Exit Ways	41	100	0	0
5	Loft	30	40	0	0
6	0	0	0	0	0

Stud Grade:	DF-L No. 2		CD =	1.6	CT =	1.088	
Fc =	1350	psi	Cm =	1.0	Km =	1200	
Fc* =	1728	psi	Ct =	1.0	KT =	0.82	
E =	1600000	psi	CF =	1.0	le =	96	in
Emin =	580000	psi	Ci =	0.8	c =	0.8	
Emin' =	504741.5	psi					

Shear Wall Mark	Wall Pier Length [ft]	Wall Height [ft]	Boundary Post A (West or South Side of Pier)																		
			Wall Thick 'd' [in]	Post Height	Flat Load Case	Post Loading						Compression Posts			End Offset		OMA [ft]	Rod Tension [kips]	TUD Bearing [kips]	Post Comp P_U [kips]	Post D/C
						Trib Area to Post [sf]	P_{DL} [kips]	P_{LL} [kips]	P_{RLL} [kips]	P_{SL} [kips]	$P_{U'}$ [kips]	Exterior	Cavity [in]	Interior	Xt [in]	Xc [in]					
1(1)_HR	10.00	7.00	5.5	8.67	3	6.7	0.180	0.000	0.133	0.693	1.007	(2)2x	6	(2)2x	6	6	9.00	0.000	0.000	1.537	0.05
1(1)_MR	10.00	10.33	5.5	10.33	5	6.7	0.200	0.267	0.000	0.000	1.473	(2)2x	6	(2)2x	6	6	9.00	0.000	0.000	3.169	0.13
1(1)_L5	10.00	10.18	5.5	10.18	1	10.0	0.420	0.400	0.000	0.000	2.293	(2)2x	6	(2)2x	6	6	9.00	0.000	0.000	5.493	0.23
1(1)_L4	10.00	10.18	5.5	10.18	1	10.0	0.420	0.400	0.000	0.000	3.113	(2)2x	6	(2)2x	6	6	9.00	0.423	0.000	8.076	0.33
1(1)_L3	10.00	10.18	5.5	10.18	1	10.0	0.420	0.400	0.000	0.000	3.933	(2)2x	6	(2)2x	6	6	9.00	1.116	0.000	10.832	0.45
1(1)_L2	10.00	10.18	5.5	10.18	1	10.0	0.420	0.400	0.000	0.000	4.753	(2)2x	6	(2)2x	6	6	9.00	1.893	0.000	13.672	0.56
1(2)_MR	10.00	8.72	5.5	8.72	3	4.0	0.108	0.000	0.080	0.416	0.604	(2)2x	6	(2)2x	6	6	9.00	0.000	0.000	1.005	0.03
1(2)_L5	10.00	10.18	5.5	10.18	1	10.0	0.420	0.400	0.000	0.000	1.424	(2)2x	6	(2)2x	6	6	9.00	0.000	0.000	2.596	0.11
1(2)_L4	10.00	10.18	5.5	10.18	1	10.0	0.420	0.400	0.000	0.000	2.244	(2)2x	6	(2)2x	6	6	9.00	0.000	0.000	4.524	0.19
1(2)_L3	10.00	10.18	5.5	10.18	1	10.0	0.420	0.400	0.000	0.000	3.064	(2)2x	6	(2)2x	6	6	9.00	0.000	0.000	6.764	0.28
1(2)_L2	10.00	10.18	5.5	10.18	1	10.0	0.420	0.400	0.000	0.000	3.884	(2)2x	6	(2)2x	6	6	9.00	0.000	0.000	9.288	0.38
2(1)_HR	8.50	13.50	5.5	12.08	3	20.0	0.540	0.000	0.400	2.080	3.020	(3)2x	6	(2)2x	7.5	6.75	7.31	0.615	2.037	4.516	0.20
2(1)_MR	8.50	8.72	5.5	8.72	5	0.0	0.000	0.000	0.000	0.000	3.020	(3)2x	6	(2)2x	7.5	6.75	7.31	4.326	0.980	8.485	0.22
2(1)_L5	8.50	8.72	5.5	8.72	1	12.0	0.504	0.480	0.000	0.000	4.004	(3)2x	6	(2)2x	7.5	6.75	7.31	8.184	0.380	14.831	0.39
2(1)_L4	8.50	8.72	5.5	8.72	1	24.0	1.008	0.960	0.000	0.000	5.972	(3)2x	6	(2)2x	7.5	6.75	7.31	13.105	0.000	23.222	0.61
2(1)_L3	8.50	8.72	5.5	8.72	1	24.0	1.008	0.960	0.000	0.000	7.940	(3)2x	6	(3)2x	7.5	7.5	7.25	18.891	0.000	32.528	0.71
2(1)_L2	8.50	8.72	5.5	8.72	1	24.0	1.008	0.960	0.000	0.000	9.908	(3)2x	6	(4)2x	7.5	8.25	7.19	26.359	0.000	43.544	0.81
2(2)_MR	10.00	8.72	5.5	8.72	3	0.0	0.000	0.000	0.000	0.000	0.000	(2)2x	6	(2)2x	6	6	9.00	0.947	1.555	1.418	0.05
2(2)_L5	10.00	8.72	5.5	8.72	1	20.0	0.840	0.800	0.000	0.000	1.640	(2)2x	6	(2)2x	6	6	9.00	2.124	0.513	5.925	0.19
2(2)_L4	10.00	8.72	5.5	8.72	1	20.0	0.840	0.800	0.000	0.000	3.280	(2)2x	6	(2)2x	6	6	9.00	4.618	0.000	11.750	0.38
2(2)_L3	10.00	8.72	5.5	8.72	1	20.0	0.840	0.800	0.000	0.000	4.920	(2)2x	6	(2)2x	6	6	9.00	8.327	0.000	18.790	0.61
2(2)_L2	10.00	8.72	5.5	8.72	1	20.0	0.840	0.800	0.000	0.000	6.560	(2)2x	6	(2)2x	6	6	9.00	13.147	0.000	26.940	0.88
4(1)_HR	12.00	14.00	5.5	12.08	3	0.0	0.000	0.000	0.000	0.000	0.000	(3)2x	6	(2)2x	7.5	6.75	10.81	0.436	1.812	1.103	0.05
4(1)_MR	12.00	8.72	5.5	8.72	5	0.0	0.000	0.000	0.000	0.000	0.000	(3)2x	6	(2)2x	7.5	6.75	10.81	3.254	0.876	4.270	0.11
4(1)_L5	12.00	8.72	5.5	8.72	1	24.0	1.008	0.960	0.000	0.000	1.968	(3)2x	6	(2)2x	7.5	6.75	10.81	5.274	0.000	10.619	0.28
4(1)_L4	12.00	8.72	5.5	8.72	1	24.0	1.008	0.960	0.000	0.000	3.936	(3)2x	6	(2)2x	7.5	6.75	10.81	8.217	0.000	17.893	0.47
4(1)_L3	12.00	8.72	5.5	8.72	1	24.0	1.008	0.960	0.000	0.000	5.904	(3)2x	6	(2)2x	7.5	6.75	10.81	11.982	0.000	25.987	0.68
4(1)_L2	12.00	8.72	5.5	8.72	1	24.0	1.008	0.960	0.000	0.000	7.872	(3)2x	6	(3)2x	7.5	7.5	10.75	17.270	0.000	35.667	0.77
4(2)_MR	10.00	8.72	5.5	8.72	3	0.0	0.000	0.000	0.000	0.000	0.000	(2)2x	6	(2)2x	6	6	9.00	0.912	1.423	1.382	0.05
4(2)_L5	10.00	8.72	5.5	8.72	1	20.0	0.840	0.800	0.000	0.000	1.640	(2)2x	6	(2)2x	6	6	9.00	1.921	0.280	5.723	0.19
4(2)_L4	10.00	8.72	5.5	8.72	1	20.0	0.840	0.800	0.000	0.000	3.280	(2)2x	6	(2)2x	6	6	9.00	4.129	0.000	11.261	0.37
4(2)_L3	10.00	8.72	5.5	8.72	1	20.0	0.840	0.800	0.000	0.000	4.920	(2)2x	6	(2)2x	6	6	9.00	7.442	0.000	17.905	0.58
4(2)_L2	10.00	8.72	5.5	8.72	1	20.0	0.840	0.800	0.000	0.000	6.560	(2)2x	6	(2)2x	6	6	9.00	11.766	0.000	25.559	0.83
5(1)_HR	12.00	14.00	5.5	12.08	3	0.0	0.000	0.000	0.000	0.000	0.000	(2)2x	6	(2)2x	6	6	11.00	0.026	0.876	0.682	0.04
5(1)_MR	12.00	8.72	5.5	8.72	5	0.0	0.000	0.000	0.000	0.000	0.000	(2)2x	6	(2)2x	6	6	11.00	1.633	0.210	2.631	0.09
5(1)_L5	12.00	8.72	5.5	8.72	1	24.0	1.008	0.960	0.000	0.000	1.968	(2)2x	6	(2)2x	6	6	11.00	2.238	0.000	7.361	0.24
5(1)_L4	12.00	8.72	5.5	8.72	1	24.0	1.008	0.960	0.000	0.000	3.936	(2)2x	6	(2)2x	6	6	11.00	3.520	0.000	12.768	0.42
5(1)_L3	12.00	8.72	5.5	8.72	1	24.0	1.008	0.960	0.000	0.000	5.904	(2)2x	6	(2)2x	6	6	11.00	5.673	0.000	19.046	0.62
5(1)_L2	12.00	8.72	5.5	8.72	1	24.0	1.008	0.960	0.000	0.000	7.872	(2)2x	6	(2)2x	6	6	11.00	8.498	0.000	25.995	0.85
5(2)_MR	10.00	8.72	5.5	8.72	3	0.0	0.000	0.000	0.000	0.000	0.000	(2)2x	6	(2)2x	6	6	9.00	0.494	0.760	0.965	0.03
5(2)_L5	10.00	8.72	5.5	8.72	1	20.0	0.840	0.800	0.000	0.000	1.640	(2)2x	6	(2)2x	6	6	9.00	0.521	0.000	4.462	0.15
5(2)_L4	10.00	8.72	5.5	8.72	1	20.0	0.840	0.800	0.000	0.000	3.280	(2)2x	6	(2)2x	6	6	9.00	1.359	0.000	8.771	0.29
5(2)_L3	10.00	8.72	5.5	8.72	1	20.0	0.840	0.800	0.000	0.000	4.920	(2)2x	6	(2)2x	6	6	9.00	2.946	0.000	13.829	0.45
5(2)_L2	10.00	8.72	5.5	8.72	1	20.0	0.840	0.800	0.000	0.000	6.560	(2)2x	6	(2)2x	6	6	9.00	5.218	0.000	19.571	0.64
6(1)_HR	12.00	14.00	5.5	12.08	3	0.0	0.000	0.000	0.000	0.000	0.000	(3)2x	6	(2)2x	7.5	6.75	10.81	0.473	1.896	1.141	0.05
6(1)_MR	12.00	8.72	5.5	8.72	5	0.0	0.000	0.000	0.000	0.000	0.000	(3)2x	6	(2)2x	7.5	6.75	10.81	3.237	0.629	4.252	0.11
6(1)_L5	12.00	8.72	5.5	8.72	1	20.0	0.840	0.800	0.000	0.000	1.640	(3)2x	6	(2)2x	7.5	6.75	10.81	5.416	0.000	10.098	0.26
6(1)_L4	12.00	8.72	5.5	8.72	1	20.0	0.840	0.800	0.000	0.000	3.280	(3)2x	6	(2)2x	7.5	6.75	10.81	8.430	0.000	16.778	0.44
6(1)_L3	12.00	8.72	5.5	8.72	1	20.0	0.840	0.800	0.000	0.000	4.920	(3)2x	6	(2)2x	7.5	6.75	10.81	11.997	0.000	24.012	0.63
6(1)_L2	12.00	8.72	5.5	8.72	1	20.0	0.840	0.800	0.000	0.000	6.560	(3)2x	6	(2)2x	7.5	6.75	10.81	15.866	0.000	31.547	0.82
6(2)_MR	7.00	8.72	5.5	8.72	5	26.1	0.784	1.045	0.000	0.000	1.829	(2)2x	6	(2)2x	6	6	6.00	0.641	0.677	3.050	0.10
6(2)_L5	7.00	8.72	5.5	8.72	1	4.9	0.205	0.195	0.000	0.000	2.229	(2)2x	6	(2)2x	6	6	6.00	1.800	0.778	5.852	0.19
6(2)_L4	7.00	8.72	5.5	8.72	1	4.9	0.205	0.195	0.000	0.000	2.628	(2)2x	6	(2)2x	6	6	6.00	3.836	0.264	9.531	0.31
6(2)_L3	7.00	8.72	5.5	8.72	1	4.9	0.205	0.195	0.000	0.000	3.028	(2)2x	6	(2)2x	6	6	6.00	6.454	0.000	13.791	0.45
6(2)_L2	7.00	8.72	5.5	8.72	1	4.9	0.205	0.195	0.000	0.000	3.428	(2)2x	6	(2)2x	6	6	6.00	9.390	0.000	18.369	0.60
6(3)_MR	8.67	8.72	5.5	8.72	3	26.0	0.702	0.000	0.520	2.704	3.926	(2)2x	6	(2)2x	6	6	7.67	0.000	0.000	5.110	0.17
6(3)_L5	8.67	8.72	5.5	8.72	1	10.0	0.420	0.400	0.000	0.000	4.746	(2)2x	6	(2)2x	6	6	7.67	1.147	0.023	8.257	0.27
6(3)_L4	8.67	8.72	5.5	8.72	1	10.0	0.420	0.400	0.000	0.000	5.566	(2)2x	6	(2)2x	6	6	7.67	3.327	0.000	12.254	0.40
6(3)_L3	8.67	8.72	5.5	8.72	1	10.0	0.420	0.400	0.000	0.000	6.386	(2)2x	6	(2)2x	6	6	7.67	6.071	0.000	16.815	0.55
6(3)_L2	8.67	8.72	5.5	8.72	1	10.0	0.420	0.400	0.000	0.000	7.206	(2)2x	6	(2)2x	6	6	7.67	9.122	0.000	21.683	0.71
7(1)_HR	8.83	4.73	CMU	4.73	3	26.1	0.705	0.000	0.523	2.717	3.945	CMU	CMU	CMU	N/A	N/A	N/A	N/A	N/A	N/A	CMU
7(1)_MR	8.83	8.72	CMU	8.72	3	4.9	0.132	0.000	0.098	0.507	4.681	CMU	CMU	CMU	N/A	N/A	N/A	N/A	N/A	N/A	CMU
7(1)_L5	8.83	8.72	CMU	8.72	1	4.9	0.205	0.195	0.000	0.000	5.081	CMU	CMU	CMU	N/A	N/A	N/A	N/A	N/A	N/A	CMU
7(1)_L4	8.83	8.72	CMU	8.72	1	4.9	0.205	0.195	0.000	0.000	5.481	CMU	CMU	CMU	N/A	N/A	N/A	N/A	N/A	N/A	CMU
7(1)_L3	8.83	8.72	CMU	8.72	1	4.9	0.205	0.195	0.000	0.000	5.880	CMU	CMU	CMU	N/A	N/A	N/A	N/A	N/A	N/A	CMU
7(1)_L2	8.83	8.72	CMU	8.72	1	0.0	0.000	0.000	0.000	0.000	5.880	CMU	CMU	CMU	N/A	N/A	N/A	N/A	N/A	N/A	CMU
7(2)_MR	12.00	8.72	5.5	8.72	3	32.0	0.864	0.000	0.640	3.328	4.832	(2)2x	6	(2)2x	6	6	11.00	0.000	0.000	5.848	0.19
7(2)_L5	12.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	5.324	(2)2x	6	(2)2x	6	6	11.00	0.236	0.000	8.684	0.28
7(2)_L4	12.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	5.816	(2)2x	6	(2)2x	6	6	11.00	2.478	0.000	12.502	0.41
7(2)_L3	12.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	6.308	(2)2x	6	(2)2x	6	6	11.00	5.372	0.000	16.973	0.55
7(2)_L2	12.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	6.800	(2)2x	6	(2)2x	6	6	11.00	8.594	0.000	21.772	0.71
7(3)_MR	9.50	8.72	5.5	8.72	3	32.0	0.864	0.000	0.640	3.328	4.832	(2)2x	6	(2)2x	6	6	8.50	0.000	0.000	5.873	0.19
7(3)_L5	9.50	8.72	5.5	8.72	1	0.0	0.000	0.000	0.000	0.000	4.832	(2)2x	6	(2)2x	6	6	8.50	1.243	0.000	8.274	0.27
7(3)_L4	9.50	8.72	5.5	8.72	1	0.0	0.000	0.000	0.000	0.000	4.832	(2)2x	6	(2)2x	6	6	8.50	4.106	0.166	11.682	0.38
7(3)_L3	9.50	8.72	5.5	8.72	1	0.0	0.000	0.000	0.000	0.000	4.832	(2)2x	6	(2)2x	6	6	8.50	7.637	0.176	15.759	0.51
7(3)_L2	9.50	8.72	5.5	8.72	1	0.0	0.000	0.000	0.000	0.000	4.832	(2)2x	6	(2)2x	6	6	8.50	11.504	0.000	20.170	0.66
8(1)_HR	12.00	14.00	5.5	12.08	3	0.0	0.000	0.000	0.000	0.000	0.000	(3)2x	6	(2)2x	7.5	6.75	10.81	1.744	4.752	2.411	0.11
8(1)_MR	12.00	8.72	5.5	8.72	5	0.0	0.000	0.000	0.000	0.000	0.000	(3)2x	6	(2)2x	7.5	6.75	10.81	6.261	0.977	7.276	0.19
8(1)_L5	12.00	8.72	5.5	8.72	1	10.0	0.420	0.400	0.000	0.000	0.820	(3)2x	6	(2)2x	7.5	6.75	10.81	10.437	0.000	13.628	0.36
8(1)_L4	12.00	8.72	5.5	8.72	1	10.0	0.420	0.400	0.000	0.000	1.640	(3)2x	6	(2)2x	7.5	6.75	10.81	15.155	0.000	20.521	0.53
8(1)_L3	12.00	8.72	5.5	8.72	1	10.0	0.420	0.400	0.000	0.000	2.460	(3)2x	6	(2)2x	7.5	6.75	10.81	20.230	0.000	27.771	0.72
8(1)_L2	12.00	8.72	5.5	8.72	1	10.0	0.420	0.400	0.000	0.000	3.280	(3)2x	6	(3)2x	7.5	7.5	10.75	25.633	0.000	35.387	0.77
8(2)_HR	12.00	6.50	5.5	6.50	3	16.0	0.432	0.000	0.320	1.664	2.416	(2)2x	6	(2)2x	6	6	11.00	0.000	0.000	2.957	0.07
8(2)_MR	12.00	8.72	5.5	8.72	3	6.0	0.162	0.000	0.120	0.624	3.322	(2)2x	6	(2)2x	6	6	11.00	0.333	0.000	5.519	0.18
8(2)_L5	12.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	3.814	(2)2x	6	(2)2x	6	6	11.00	1.605	0.000	8.368	0.27
8(2)_L4	12.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	4.306	(2)2x	6	(2)2x	6	6	11.00	3.409	0.000	11.749	0.38
8(2)_L3	12.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	4.798	(2)2x	6	(2)2x	6	6	11.00	5.565	0.000	15.481	0.50
8(2)_L2	12.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	5.290	(2)2x	6	(2)2x	6	6	11.00	7.897	0.000	19.390	0.63
8(3)_HR	18.00	6.50	5.5	6.50	3	0.0	0.000	0.000	0.000	0.000	0.000	(2)2x	6	(2)2x	6	6	17.00	0.000	0.000	0.525	0.01
8(3)_MR	18.00	8.72	5.5	8.72	3	6.0	0.162	0.000	0.120	0.624	0.906	(2)2x	6	(2)2x	6	6	17.00	0.000	0.000	3.038	0.10
8(3)_L5	18.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	1.398	(2)2x	6	(2)2x	6	6	17.00	0.127	0.000	5.818	0.19
8(3)_L4	18.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	1.890	(2)2x	6	(2)2x	6	6	17.00	1.351	0.000	9.114	0.30
8(3)_L3	18.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	2.382	(2)2x	6	(2)2x	6	6	17.00	2.918	0.000	12.751	0.42
8(3)_L2	18.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	2.874	(2)2x	6	(2)2x	6	6	17.00	4.655	0.000	16.560	0.54

KL&A Engineers & Builders

Title	Basecamp Phase II			Date	3 5 26	Job No.	25336
Subject	Anchor-Rod Boundary A			By	APS	Sheet	

Level	Story Height [ft]	Framing Depth [in]	Stud Height [in]
HR	6.229	17	57.75
MR	10.646	23.125	104.63
L5	10.490	21.25	104.63
L4	10.490	21.25	104.63
L3	10.490	21.25	104.63
L2	10.490	21.25	104.63

Flat Load Cases	Type	Dead [psf]	Live [psf]	Roof Live [psf]	Snow [psf]
1	Floor	42	40	0	0
2	Balcony	46	60	0	0
3	Roof	27	0	20	104
4	Exit Ways	41	100	0	0
5	Loft	30	40	0	0
6	0	0	0	0	0

Stud Grade:	DF-L No. 2		CD =	1.6	CT =	1.088	
Fc =	1350	psi	Cm =	1.0	Km =	1200	
Fc* =	1728	psi	Ct =	1.0	KT =	0.82	
E =	1600000	psi	CF =	1.0	le =	96	in
Emin =	580000	psi	Ci =	0.8	c =	0.8	
Emin' =	504741.5	psi					

Shear Wall Mark	Wall Pier Length [ft]	Wall Height [ft]	Boundary Post A (West or South Side of Pier)																		
			Wall Thick 'd' [in]	Post Height	Flat Load Case	Post Loading						Compression Posts			End Offset		OMA [ft]	Rod Tension [kips]	TUD Bearing [kips]	Post Comp P_U [kips]	Post D/C
						Trib Area to Post [sf]	P_{DL} [kips]	P_{LL} [kips]	P_{RLL} [kips]	P_{SL} [kips]	$P_{U'}$ [kips]	Exterior	Cavity [in]	Interior	Xt [in]	Xc [in]					
8(4)_HR	9.00	6.50	5.5	6.50	3	0.0	0.000	0.000	0.000	0.000	0.000	(2)2x	6	(2)2x	6	6	8.00	0.000	0.000	0.558	0.01
8(4)_MR	9.00	8.72	5.5	8.72	3	6.0	0.162	0.000	0.120	0.624	0.906	(2)2x	6	(2)2x	6	6	8.00	0.824	0.481	3.172	0.10
8(4)_L5	9.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	1.398	(2)2x	6	(2)2x	6	6	8.00	2.416	0.210	6.094	0.20
8(4)_L4	9.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	1.890	(2)2x	6	(2)2x	6	6	8.00	4.555	0.000	9.565	0.31
8(4)_L3	9.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	2.382	(2)2x	6	(2)2x	6	6	8.00	7.059	0.000	13.399	0.44
8(4)_L2	9.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	2.874	(2)2x	6	(2)2x	6	6	8.00	9.743	0.000	17.415	0.57
9(1)_HR	6.00	7.00	5.5	7.00	3	10.0	0.270	0.000	0.200	1.040	1.510	(4)2x	6	(2)2x	9	7.5	4.63	0.000	0.000	1.510	0.03
9(1)_MR	6.00	10.33	5.5	10.33	5	0.0	0.000	0.000	0.000	0.000	1.510	(4)2x	6	(2)2x	9	7.5	4.63	0.000	4.043	1.510	0.04
9(1)_L5	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	1.510	(4)2x	6	(2)2x	9	7.5	4.63	0.000	1.061	2.971	0.08
9(1)_L4	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	1.510	(4)2x	6	(2)2x	9	7.5	4.63	1.875	1.620	5.501	0.15
9(1)_L3	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	1.510	(4)2x	6	(2)2x	9	7.5	4.63	4.637	1.830	8.741	0.24
9(1)_L2	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	1.510	(4)2x	6	(2)2x	9	7.5	4.63	7.748	1.692	12.331	0.34
9(2)_HR	6.00	11.50	5.5	11.50	3	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	1.961	1.059	2.832	0.10
9(2)_L5	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	4.704	1.349	6.053	0.17
9(2)_L4	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	8.516	1.908	10.344	0.28
9(2)_L3	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	13.038	2.118	15.343	0.42
9(2)_L2	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	17.910	1.980	20.694	0.57
9(3)_HR	6.00	11.50	5.5	11.50	3	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	1.961	1.059	2.832	0.10
9(3)_L5	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	4.704	1.349	6.053	0.17
9(3)_L4	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	8.516	1.908	10.344	0.28
9(3)_L3	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	13.038	2.118	15.343	0.42
9(3)_L2	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	17.910	1.980	20.694	0.57
9(4)_HR	6.00	11.50	5.5	11.50	3	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	1.961	1.059	2.832	0.10
9(4)_L5	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	4.704	1.349	6.053	0.17
9(4)_L4	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	8.516	1.908	10.344	0.28
9(4)_L3	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	13.038	2.118	15.343	0.42
9(4)_L2	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	17.910	1.980	20.694	0.57
A(1)_MR	6.50	8.72	5.5	8.72	3	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	5.13	0.505	0.339	0.917	0.02
A(1)_L5	6.50	10.18	5.5	10.18	1	10.0	0.420	0.400	0.000	0.000	0.820	(4)2x	6	(2)2x	9	7.5	5.13	1.671	1.545	3.825	0.11
A(1)_L4	6.50	10.18	5.5	10.18	1	10.0	0.420	0.400	0.000	0.000	1.640	(4)2x	6	(2)2x	9	7.5	5.13	4.084	1.735	7.980	0.22
A(1)_L3	6.50	10.18	5.5	10.18	1	10.0	0.420	0.400	0.000	0.000	2.460	(4)2x	6	(2)2x	9	7.5	5.13	7.607	1.884	13.245	0.36
A(1)_L2	6.50	10.18	5.5	10.18	1	10.0	0.420	0.400	0.000	0.000	3.280	(4)2x	6	(2)2x	9	7.5	5.13	12.156	1.958	19.536	0.54
A(2)_HR	7.25	7.00	5.5	7.00	3	16.0	0.432	0.000	0.320	1.664	2.416	(4)2x	6	(2)2x	9	7.5	5.88	0.441	0.336	3.665	0.06
A(2)_MR	7.25	10.33	5.5	10.33	3	18.0	0.486	0.000	0.360	1.872	5.134	(4)2x	6	(2)2x	9	7.5	5.88	2.622	0.013	9.410	0.27
A(2)_L5	7.25	10.18	5.5	10.18	1	12.0	0.504	0.480	0.000	0.000	6.118	(4)2x	6	(2)2x	9	7.5	5.88	5.755	0.089	14.528	0.40
A(2)_L4	7.25	10.18	5.5	10.18	1	12.0	0.504	0.480	0.000	0.000	7.102	(4)2x	6	(2)2x	9	7.5	5.88	9.732	0.171	20.489	0.56
A(2)_L3	7.25	10.18	5.5	10.18	1	12.0	0.504	0.480	0.000	0.000	8.086	(4)2x	6	(2)2x	9	7.5	5.88	14.619	0.212	27.362	0.75
A(2)_L2	7.25	10.18	5.5	10.18	1	12.0	0.504	0.480	0.000	0.000	9.070	(4)2x	6	(3)2x	9	8.25	5.81	21.072	0.186	35.860	0.85
B.2(1)_HR	16.00	15.00	5.5	8.00	3	0.0	0.000	0.000	0.000	0.000	0.000	(2)2x	6	(2)2x	6	6	15.00	0.000	0.847	0.728	0.02
B.2(1)_MR	16.00	8.72	5.5	8.72	5	28.0	0.840	1.120	0.000	0.000	1.960	(2)2x	6	(2)2x	6	6	15.00	1.621	0.000	4.934	0.16
B.2(1)_L5	16.00	8.72	5.5	8.72	1	28.0	1.176	1.120	0.000	0.000	4.256	(2)2x	6	(2)2x	6	6	15.00	2.612	0.000	11.033	0.36
B.2(1)_L4	16.00	8.72	5.5	8.72	1	28.0	1.176	1.120	0.000	0.000	6.552	(2)2x	6	(2)2x	6	6	15.00	5.012	0.000	18.541	0.60
B.2(1)_L3	16.00	8.72	5.5	8.72	1	28.0	1.176	1.120	0.000	0.000	8.848	(2)2x	6	(3)2x	6	6.75	14.94	8.766	0.000	27.443	0.72
B.2(1)_L2	16.00	8.72	5.5	8.72	1	28.0	1.176	1.120	0.000	0.000	11.144	(2)2x	6	(4)2x	6	7.5	14.88	13.787	0.000	37.636	0.82
B.7(1)_HR	12.00	14.00	5.5	16.67	3	0.0	0.000	0.000	0.000	0.000	0.000	(2)2x	6	(2)2x	6	6	11.00	0.000	0.806	0.651	0.07
B.7(1)_MR	12.00	8.72	5.5	8.72	5	0.0	0.000	0.000	0.000	0.000	0.000	(2)2x	6	(2)2x	6	6	11.00	1.980	0.951	2.979	0.10
B.7(1)_L5	12.00	8.72	5.5	8.72	1	26.0	1.092	1.040	0.000	0.000	2.132	(2)2x	6	(2)2x	6	6	11.00	3.834	0.000	8.957	0.29
B.7(1)_L4	12.00	8.72	5.5	8.72	1	26.0	1.092	1.040	0.000	0.000	4.264	(2)2x	6	(2)2x	6	6	11.00	6.787	0.000	16.033	0.52
B.7(1)_L3	12.00	8.72	5.5	8.72	1	26.0	1.092	1.040	0.000	0.000	6.396	(2)2x	6	(2)2x	6	6	11.00	10.469	0.000	23.838	0.78
B.7(1)_L2	12.00	8.72	5.5	8.72	1	26.0	1.092	1.040	0.000	0.000	8.528	(2)2x	6	(3)2x	6	6.75	10.94	14.711	0.000	32.256	0.84
C.3(1)_MR	8.00	8.72	5.5	8.72	5	26.0	0.780	1.040	0.000	0.000	1.820	(2)2x	6	(2)2x	6	6	7.00	0.866	0.049	3.748	0.12
C.3(1)_L5	8.00	8.72	5.5	8.72	1	26.0	1.092	1.040	0.000	0.000	3.952	(2)2x	6	(2)2x	6	6	7.00	2.978	0.000	9.383	0.31
C.3(1)_L4	8.00	8.72	5.5	8.72	1	26.0	1.092	1.040	0.000	0.000	6.084	(2)2x	6	(2)2x	6	6	7.00	6.263	0.000	16.192	0.53
C.3(1)_L3	8.00	8.72	5.5	8.72	1	26.0	1.092	1.040	0.000	0.000	8.216	(2)2x	6	(2)2x	6	6	7.00	10.327	0.000	23.779	0.77
C.3(1)_L2	8.00	8.72	5.5	8.72	1	26.0	1.092	1.040	0.000	0.000	10.348	(2)2x	6	(3)2x	6	6.75	6.94	14.905	0.000	31.940	0.83
C.3(2)_HR	7.00	15.00	5.5	16.25	3	0.0	0.000	0.000	0.000	0.000	10.348	(3)2x	6	(2)2x	7.5	6.75	5.81	0.614	2.110	11.410	0.88
C.3(2)_MR	7.00	8.72	5.5	8.72	5	0.0	0.000	0.000	0.000	0.000	10.348	(3)2x	6	(2)2x	7.5	6.75	5.81	4.006	1.821	15.022	0.39
C.3(2)_L5	7.00	8.72	5.5	8.72	1	26.0	1.092	1.040	0.000	0.000	12.480	(3)2x	6	(2)2x	7.5	6.75	5.81	8.057	0.276	22.488	0.59
C.3(2)_L4	7.00	8.72	5.5	8.72	1	26.0	1.092	1.040	0.000	0.000	14.612	(3)2x	6	(3)2x	7.5	7.5	5.75	13.490	0.000	31.370	0.68
C.3(2)_L3	7.00	8.72	5.5	8.72	1	26.0	1.092	1.040	0.000	0.000	16.744	(3)2x	6	(4)2x	7.5	8.25	5.69	19.880	0.000	41.239	0.77
C.3(2)_L2	7.00	8.72	5.5	8.72	1	26.0	1.092	1.040	0.000	0.000	18.876	(3)2x	6	(5)2x	7.5	9	5.63	26.827	0.000	51.696	0.84
C.6(1)_HR	9.83	4.73	CMU	4.73	3	13.7	0.369	0.000	0.273	1.421	2.064	CMU	CMU	CMU	N/A	N/A	N/A	N/A	N/A	N/A	CMU
C.6(1)_MR	9.83	8.72	CMU	8.72	3	13.7	0.369	0.000	0.273	1.421	4.127	CMU	CMU	CMU	N/A	N/A	N/A	N/A	N/A	N/A	CMU
C.6(1)_L5	9.83	8.72	CMU	8.72	1	13.7	0.574	0.547	0.000	0.000	5.248	CMU	CMU	CMU	N/A	N/A	N/A	N/A	N/A	N/A	CMU
C.6(1)_L4	9.83	8.72	CMU	8.72	1	13.7	0.574	0.547	0.000	0.000	6.369	CMU	CMU	CMU	N/A	N/A	N/A	N/A	N/A	N/A	CMU
C.6(1)_L3	9.83	8.72	CMU	8.72	1	0.0	0.000	0.000	0.000	0.000	6.369	CMU	CMU	CMU	N/A	N/A	N/A	N/A	N/A	N/A	CMU
C.6(1)_L2	9.83	8.72	CMU	8.72	1	0.0	0.000	0.000	0.000	0.000	6.369	CMU	CMU	CMU	N/A	N/A	N/A	N/A	N/A	N/A	CMU
C.6(2)_HR	11.33	14.00	5.5	16.33	3	0.0	0.000	0.000	0.000	0.000	6.369	(3)2x	6	(2)2x	7.5	6.75	10.15	0.000	0.436	7.260	0.56
C.6(2)_MR	11.33	8.72	5.5	8.72	5	0.0	0.000	0.000	0.000	0.000	6.369	(3)2x	6	(2)2x	7.5	6.75	10.15	2.374	0.401	10.643	0.28
C.6(2)_L5	11.33	8.72	5.5	8.72	1	26.0	1.092	1.040	0.000	0.000	8.501	(3)2x	6	(2)2x	7.5	6.75	10.15	5.502	0.000	17.829	0.46
C.6(2)_L4	11.33	8.72	5.5	8.72	1	26.0	1.092	1.040	0.000	0.000	10.633	(3)2x	6	(2)2x	7.5	6.75	10.15	9.891	0.000	26.275	0.69
C.6(2)_L3	11.33	8.72	5.5	8.72	1	26.0	1.092	1.040	0.000	0.000	12.765	(3)2x	6	(3)2x	7.5	7.5	10.08	15.209	0.000	35.700	0.78
C.6(2)_L2	11.33	8.72	5.5	8.72	1	26.0	1.092	1.040	0.000	0.000	14.897	(3)2x	6	(4)2x	7.5	8.25	10.02	21.008	0.000	45.629	0.85
E(1)_MR	16.00	8.72	5.5	8.72	3	35.0	0.945	0.000	0.700	3.640	5.285	(2)2x	6	(2)2x	6	6	15.00	0.000	0.000	5.772	0.19
E(1)_L5	16.00	8.72	5.5	8.72	1	0.0	0.000	0.000	0.000	0.000	5.285	(2)2x	6	(2)2x	6	6	15.00	0.000	0.000	6.760	0.22
E(1)_L4	16.00	8.72	5.5	8.72	1	0.0	0.000	0.000	0.000	0.000	5.285	(2)2x	6	(2)2x	6	6	15.00	0.000	0.000	8.119	0.26
E(1)_L3	16.00	8.72	5.5	8.72	1	0.0	0.000	0.000	0.000	0.000	5.285	(2)2x	6	(2)2x	6	6	15.00	0.000	0.000	9.726	0.32
E(1)_L2	16.00	8.72	5.5	8.72	1	0.0	0.000	0.000	0.000	0.000	5.285	(2)2x	6	(2)2x	6	6	15.00	0.000	0.000	11.453	0.37
E(2)_MR	14.00	8.72	5.5	8.72	3	35.0	0.945	0.000	0.700	3.640	5.285	(2)2x	6	(2)2x	6	6	13.00	0.000	0.000	5.777	0.19
E(2)_L5	14.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	5.777	(2)2x	6	(2)2x	6	6	13.00	0.000	0.000	7.266	0.24
E(2)_L4	14.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	6.269	(2)2x	6	(2)2x	6	6	13.00	0.000	0.000	9.131	0.30
E(2)_L3	14.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	6.761	(2)2x	6	(2)2x	6	6	13.00	0.000	0.000	11.245	0.37
E(2)_L2	14.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	7.253	(2)2x	6	(2)2x	6	6	13.00	0.000	0.000	13.481	0.44
E(3)_MR	10.00	8.72	5.5	8.72	3	35.0	0.945	0.000	0.700	3.640	5.285	(2)2x	6	(2)2x	6	6	9.00	0.000	0.000	5.792	0.19
E(3)_L5	10.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	5.777	(2)2x	6	(2)2x	6	6	9.00	0.000	0.000	7.313	0.24
E(3)_L4	10.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	6.269	(2)2x	6	(2)2x	6	6	9.00	0.000	0.000	9.222	0.30
E(3)_L3	10.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	6.761	(2)2x	6	(2)2x	6	6	9.00	0.000	0.000	11.387	0.37
E(3)_L2	10.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	7.253	(2)2x	6	(2)2x	6	6	9.00	0.832	0.000	13.678	0.45
F(1)_HR	8.00	5.00	5.5	5.00	3	0.0	0.000	0.000	0.000	0.000	0.000	(2)2x	6	(2)2x	6	6	7.00	0.270	0.071	1.008	0.02
F(1)_MR	8.00	8.72	5.5	8.72	3	6.0	0.162	0.000	0.120	0.624	0.906	(2)2x	6	(2)2x	6	6	7.00	2.568	0.956	4.710	0.15
F(1)_L5	8.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	1.398	(2)2x	6	(2)2x	6	6	7.00	5.678	1.070	9.069	0.30
F(1)_L4	8.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	1.890	(2)2x	6	(2)2x	6	6	7.00	9.603	0.989	14.244	0.46
F(1)_L3	8.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	2.382	(2)2x	6	(2)2x	6	6	7.00	14.068	0.681	19.959	0.65
F(1)_L2	8.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	2.874	(2)2x	6	(2)2x	6	6	7.00	18.798	0.143	25.938	0.85

KL&A Engineers & Builders

Title	Basecamp Phase II	Date	3 5 26	Job No.	25336
Subject	Anchor-Rod Boundary A	By	APS	Sheet	

Level	Story Height [ft]	Framing Depth [in]	Stud Height [in]
HR	6.229	17	57.75
MR	10.646	23.125	104.63
L5	10.490	21.25	104.63
L4	10.490	21.25	104.63
L3	10.490	21.25	104.63
L2	10.490	21.25	104.63

Flat Load Cases	Type	Dead [psf]	Live [psf]	Roof Live [psf]	Snow [psf]
1	Floor	42	40	0	0
2	Balcony	46	60	0	0
3	Roof	27	0	20	104
4	Exit Ways	41	100	0	0
5	Loft	30	40	0	0
6	0	0	0	0	0

Stud Grade:	DF-L No. 2		CD =	1.6	CT =	1.088	
Fc =	1350	psi	Cm =	1.0	Km =	1200	
Fc* =	1728	psi	Ct =	1.0	KT =	0.82	
E =	1600000	psi	CF =	1.0	le =	96	in
Emin =	580000	psi	Ci =	0.8	c =	0.8	
Emin' =	504741.5	psi					

Shear Wall Mark	Wall Pier Length [ft]	Wall Height [ft]	Boundary Post A (West or South Side of Pier)																		
			Wall Thick 'd' [in]	Post Height	Flat Load Case	Post Loading						Compression Posts			End Offset		OMA [ft]	Rod Tension [kips]	TUD Bearing [kips]	Post Comp P_U [kips]	Post D/C
						Trib Area to Post [sf]	P_{DL} [kips]	P_{LL} [kips]	P_{RLL} [kips]	P_{SL} [kips]	$P_{U'}$ [kips]	Exterior	Cavity [in]	Interior	Xt [in]	Xc [in]					
F(2)_HR	34.00	5.00	5.5	5.00	3	0.0	0.000	0.000	0.000	0.000	0.000	(2)2x	6	(2)2x	6	6	33.00	0.000	0.000	0.909	0.02
F(2)_MR	34.00	8.72	5.5	8.72	3	6.0	0.162	0.000	0.120	0.624	0.906	(2)2x	6	(2)2x	6	6	33.00	0.000	0.000	4.335	0.14
F(2)_L5	34.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	1.398	(2)2x	6	(2)2x	6	6	33.00	0.000	0.000	8.314	0.27
F(2)_L4	34.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	1.890	(2)2x	6	(2)2x	6	6	33.00	0.596	0.000	13.027	0.42
F(2)_L3	34.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	2.382	(2)2x	6	(2)2x	6	6	33.00	2.402	0.000	18.228	0.59
F(2)_L2	34.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	2.874	(2)2x	6	(2)2x	6	6	33.00	4.446	0.000	23.667	0.77
G(1)_HR	7.50	11.50	5.5	11.50	3	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	6.13	2.483	1.365	3.510	0.12
G(1)_L5	7.50	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	6.13	5.302	1.691	6.894	0.19
G(1)_L4	7.50	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	6.13	9.001	1.980	11.157	0.31
G(1)_L3	7.50	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	6.13	13.283	1.982	16.004	0.44
G(1)_L2	7.50	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	6.13	17.851	1.695	21.136	0.58
G(2)_HR	7.50	11.50	5.5	11.50	3	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	6.13	2.483	1.365	3.510	0.12
G(2)_L5	7.50	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	6.13	5.302	1.691	6.894	0.19
G(2)_L4	7.50	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	6.13	9.001	1.980	11.157	0.31
G(2)_L3	7.50	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	6.13	13.283	1.982	16.004	0.44
G(2)_L2	7.50	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	6.13	17.851	1.695	21.136	0.58
G(3)_HR	6.00	11.50	5.5	11.50	3	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	2.848	1.663	3.719	0.13
G(3)_L5	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	5.954	2.128	7.304	0.20
G(3)_L4	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	9.993	2.555	11.820	0.33
G(3)_L3	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	14.649	2.676	16.955	0.47
G(3)_L2	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	19.609	2.491	22.393	0.62
G(4)_HR	6.00	11.50	5.5	11.50	3	0.0	0.000	0.000	0.000	0.000	0.000	(2)2x	6	(2)2x	6	6	5.00	2.634	1.539	3.440	0.17
G(4)_L5	6.00	10.18	5.5	10.18	1	1.8	0.074	0.070	0.000	0.000	0.144	(4)2x	6	(2)2x	9	7.5	4.63	5.954	2.084	7.447	0.21
G(4)_L4	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.144	(4)2x	6	(2)2x	9	7.5	4.63	9.993	2.555	11.964	0.33
G(4)_L3	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.144	(4)2x	6	(2)2x	9	7.5	4.63	14.649	2.676	17.099	0.47
G(4)_L2	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.144	(4)2x	6	(2)2x	9	7.5	4.63	19.609	2.491	22.536	0.62
G(5)_HR	7.50	11.50	5.5	11.50	3	0.0	0.000	0.000	0.000	0.000	0.000	(2)2x	6	(2)2x	6	6	6.50	1.989	0.935	3.308	0.17
G(5)_L5	7.50	10.18	5.5	10.18	1	22.0	0.924	0.880	0.000	0.000	1.804	(2)2x	6	(2)2x	6	6	6.50	4.100	0.143	8.300	0.34
G(5)_L4	7.50	10.18	5.5	10.18	1	22.0	0.924	0.880	0.000	0.000	3.608	(2)2x	6	(2)2x	6	6	6.50	7.040	0.000	14.121	0.58
G(5)_L3	7.50	10.18	5.5	10.18	1	22.0	0.924	0.880	0.000	0.000	5.412	(2)2x	6	(3)2x	6	6.75	6.44	10.633	0.000	20.639	0.68
G(5)_L2	7.50	10.18	5.5	10.18	1	22.0	0.924	0.880	0.000	0.000	7.216	(2)2x	6	(4)2x	6	7.5	6.38	14.570	0.000	27.523	0.76

KL&A Engineers & Builders

Title	Basecamp Phase II			Date	3 5 26	Job No.	25336
Subject	Anchor-Rod Boundary B			By	APS	Sheet	

Level	Story Height [ft]	Framing Depth [in]	Stud Height [in]
HR	6.229	17	57.75
MR	10.646	23.125	104.63
L5	10.490	21.25	104.63
L4	10.490	21.25	104.63
L3	10.490	21.25	104.63
L2	10.490	21.25	104.63

Flat Load Cases	Type	Dead [psf]	Live [psf]	Roof Live [psf]	Snow [psf]
1	Floor	42	40	0	0
2	Balcony	46	60	0	0
3	Roof	27	0	20	104
4	Exit Ways	41	100	0	0
5	Loft	30	40	0	0
6	0	0	0	0	0

Stud Grade:	DF-L No. 2		CD =	1.6	CT =	1.088	
Fc =	1350	psi	Cm =	1.0	Km =	1200	
Fc* =	1728	psi	Ct =	1.0	KT =	0.82	
E =	1600000	psi	CF =	1.0	le =	96	in
Emin =	580000	psi	Ci =	0.8	c =	0.8	
Emin' =	504741.5	psi					

Shear Wall Mark	Wall Pier Length [ft]	Wall Height [ft]	Boundary Post B (East or North Side of Pier)																		
			Wall Thick 'd' [in]	Post Height	Flat Load Case	Post Loading						Compression Posts			End Offset		OMA [ft]	Rod Tension [kips]	TUD Bearing [kips]	Post Comp P_U [kips]	Post D/C
						Trib Area to Post [sf]	P_{DL} [kips]	P_{LL} [kips]	P_{RLL} [kips]	P_{SL} [kips]	$P_{U'}$ [kips]	Exterior	Cavity [in]	Interior	Xt [in]	Xc [in]					
1(1)_HR	10.00	7.00	5.5	5.50	3	6.7	0.180	0.000	0.133	0.693	1.007	(3)2x	6	(2)2x	7.5	6.75	8.81	0.000	0.000	1.549	0.03
1(1)_MR	10.00	10.33	5.5	10.33	5	6.7	0.200	0.267	0.000	0.000	1.473	(3)2x	6	(2)2x	7.5	6.75	8.81	0.000	0.000	3.205	0.11
1(1)_L5	10.00	10.18	5.5	10.18	1	10.0	0.420	0.400	0.000	0.000	2.293	(3)2x	6	(2)2x	7.5	6.75	8.81	0.000	0.000	5.561	0.18
1(1)_L4	10.00	10.18	5.5	10.18	1	10.0	0.420	0.400	0.000	0.000	3.113	(3)2x	6	(2)2x	7.5	6.75	8.81	0.432	0.000	8.182	0.27
1(1)_L3	10.00	10.18	5.5	10.18	1	10.0	0.420	0.400	0.000	0.000	3.933	(3)2x	6	(2)2x	7.5	6.75	8.81	1.139	0.000	10.979	0.36
1(1)_L2	10.00	10.18	5.5	10.18	1	10.0	0.420	0.400	0.000	0.000	4.753	(3)2x	6	(2)2x	7.5	6.75	8.81	1.933	0.000	13.862	0.46
1(2)_MR	10.00	8.72	5.5	8.72	3	4.0	0.108	0.000	0.080	0.416	0.604	(2)2x	6	(2)2x	6	6	9.00	0.000	0.000	1.005	0.03
1(2)_L5	10.00	10.18	5.5	10.18	1	10.0	0.420	0.400	0.000	0.000	1.424	(2)2x	6	(2)2x	6	6	9.00	0.000	0.000	2.596	0.11
1(2)_L4	10.00	10.18	5.5	10.18	1	10.0	0.420	0.400	0.000	0.000	2.244	(2)2x	6	(2)2x	6	6	9.00	0.000	0.000	4.524	0.19
1(2)_L3	10.00	10.18	5.5	10.18	1	10.0	0.420	0.400	0.000	0.000	3.064	(2)2x	6	(2)2x	6	6	9.00	0.000	0.000	6.764	0.28
1(2)_L2	10.00	10.18	5.5	10.18	1	10.0	0.420	0.400	0.000	0.000	3.884	(2)2x	6	(2)2x	6	6	9.00	0.000	0.000	9.288	0.38
2(1)_HR	8.50	13.50	5.5	15.00	3	20.0	0.540	0.000	0.400	2.080	3.020	(3)2x	6	(2)2x	7.5	6.75	7.31	0.615	2.037	4.516	0.30
2(1)_MR	8.50	8.72	5.5	8.72	5	0.0	0.000	0.000	0.000	0.000	3.020	(3)2x	6	(2)2x	7.5	6.75	7.31	4.326	0.980	8.485	0.22
2(1)_L5	8.50	8.72	5.5	8.72	1	12.0	0.504	0.480	0.000	0.000	4.004	(3)2x	6	(2)2x	7.5	6.75	7.31	8.184	0.380	14.831	0.39
2(1)_L4	8.50	8.72	5.5	8.72	1	24.0	1.008	0.960	0.000	0.000	5.972	(3)2x	6	(2)2x	7.5	6.75	7.31	13.105	0.000	23.222	0.61
2(1)_L3	8.50	8.72	5.5	8.72	1	24.0	1.008	0.960	0.000	0.000	7.940	(3)2x	6	(3)2x	7.5	7.5	7.25	18.891	0.000	32.528	0.71
2(1)_L2	8.50	8.72	5.5	8.72	1	24.0	1.008	0.960	0.000	0.000	9.908	(3)2x	6	(4)2x	7.5	8.25	7.19	26.359	0.000	43.544	0.81
2(2)_MR	10.00	8.72	5.5	8.72	3	0.0	0.000	0.000	0.000	0.000	0.000	(2)2x	6	(2)2x	6	6	9.00	0.947	1.555	1.418	0.05
2(2)_L5	10.00	8.72	5.5	8.72	1	20.0	0.840	0.800	0.000	0.000	1.640	(2)2x	6	(2)2x	6	6	9.00	2.124	0.513	5.925	0.19
2(2)_L4	10.00	8.72	5.5	8.72	1	20.0	0.840	0.800	0.000	0.000	3.280	(2)2x	6	(2)2x	6	6	9.00	4.618	0.000	11.750	0.38
2(2)_L3	10.00	8.72	5.5	8.72	1	20.0	0.840	0.800	0.000	0.000	4.920	(2)2x	6	(2)2x	6	6	9.00	8.327	0.000	18.790	0.61
2(2)_L2	10.00	8.72	5.5	8.72	1	20.0	0.840	0.800	0.000	0.000	6.560	(2)2x	6	(2)2x	6	6	9.00	13.147	0.000	26.940	0.88
4(1)_HR	12.00	14.00	5.5	6.33	3	0.0	0.000	0.000	0.000	0.000	0.000	(3)2x	6	(2)2x	7.5	6.75	10.81	0.436	1.812	1.103	0.02
4(1)_MR	12.00	8.72	5.5	8.72	5	0.0	0.000	0.000	0.000	0.000	0.000	(3)2x	6	(2)2x	7.5	6.75	10.81	3.254	0.876	4.270	0.11
4(1)_L5	12.00	8.72	5.5	8.72	1	24.0	1.008	0.960	0.000	0.000	1.968	(3)2x	6	(2)2x	7.5	6.75	10.81	5.274	0.000	10.619	0.28
4(1)_L4	12.00	8.72	5.5	8.72	1	24.0	1.008	0.960	0.000	0.000	3.936	(3)2x	6	(2)2x	7.5	6.75	10.81	8.217	0.000	17.893	0.47
4(1)_L3	12.00	8.72	5.5	8.72	1	24.0	1.008	0.960	0.000	0.000	5.904	(3)2x	6	(2)2x	7.5	6.75	10.81	11.982	0.000	25.987	0.68
4(1)_L2	12.00	8.72	5.5	8.72	1	24.0	1.008	0.960	0.000	0.000	7.872	(3)2x	6	(3)2x	7.5	7.5	10.75	17.270	0.000	35.667	0.77
4(2)_MR	10.00	8.72	5.5	8.72	3	0.0	0.000	0.000	0.000	0.000	0.000	(2)2x	6	(2)2x	6	6	9.00	0.912	1.423	1.382	0.05
4(2)_L5	10.00	8.72	5.5	8.72	1	20.0	0.840	0.800	0.000	0.000	1.640	(2)2x	6	(2)2x	6	6	9.00	1.921	0.280	5.723	0.19
4(2)_L4	10.00	8.72	5.5	8.72	1	20.0	0.840	0.800	0.000	0.000	3.280	(2)2x	6	(2)2x	6	6	9.00	4.129	0.000	11.261	0.37
4(2)_L3	10.00	8.72	5.5	8.72	1	20.0	0.840	0.800	0.000	0.000	4.920	(2)2x	6	(2)2x	6	6	9.00	7.442	0.000	17.905	0.58
4(2)_L2	10.00	8.72	5.5	8.72	1	20.0	0.840	0.800	0.000	0.000	6.560	(2)2x	6	(2)2x	6	6	9.00	11.766	0.000	25.559	0.83
5(1)_HR	12.00	14.00	5.5	16.50	3	0.0	0.000	0.000	0.000	0.000	0.000	(2)2x	6	(2)2x	6	6	11.00	0.026	0.876	0.682	0.07
5(1)_MR	12.00	8.72	5.5	8.72	5	0.0	0.000	0.000	0.000	0.000	0.000	(2)2x	6	(2)2x	6	6	11.00	1.633	0.210	2.631	0.09
5(1)_L5	12.00	8.72	5.5	8.72	1	24.0	1.008	0.960	0.000	0.000	1.968	(2)2x	6	(2)2x	6	6	11.00	2.238	0.000	7.361	0.24
5(1)_L4	12.00	8.72	5.5	8.72	1	24.0	1.008	0.960	0.000	0.000	3.936	(2)2x	6	(2)2x	6	6	11.00	3.520	0.000	12.768	0.42
5(1)_L3	12.00	8.72	5.5	8.72	1	24.0	1.008	0.960	0.000	0.000	5.904	(2)2x	6	(2)2x	6	6	11.00	5.673	0.000	19.046	0.62
5(1)_L2	12.00	8.72	5.5	8.72	1	24.0	1.008	0.960	0.000	0.000	7.872	(2)2x	6	(2)2x	6	6	11.00	8.498	0.000	25.995	0.85
5(2)_MR	10.00	8.72	5.5	8.72	3	0.0	0.000	0.000	0.000	0.000	0.000	(2)2x	6	(2)2x	6	6	9.00	0.494	0.760	0.965	0.03
5(2)_L5	10.00	8.72	5.5	8.72	1	20.0	0.840	0.800	0.000	0.000	1.640	(2)2x	6	(2)2x	6	6	9.00	0.521	0.000	4.462	0.15
5(2)_L4	10.00	8.72	5.5	8.72	1	20.0	0.840	0.800	0.000	0.000	3.280	(2)2x	6	(2)2x	6	6	9.00	1.359	0.000	8.771	0.29
5(2)_L3	10.00	8.72	5.5	8.72	1	20.0	0.840	0.800	0.000	0.000	4.920	(2)2x	6	(2)2x	6	6	9.00	2.946	0.000	13.829	0.45
5(2)_L2	10.00	8.72	5.5	8.72	1	20.0	0.840	0.800	0.000	0.000	6.560	(2)2x	6	(2)2x	6	6	9.00	5.218	0.000	19.571	0.64
6(1)_HR	12.00	14.00	5.5	16.50	3	0.0	0.000	0.000	0.000	0.000	0.000	(3)2x	6	(2)2x	7.5	6.75	10.81	0.473	1.896	1.141	0.09
6(1)_MR	12.00	8.72	5.5	8.72	5	0.0	0.000	0.000	0.000	0.000	0.000	(3)2x	6	(2)2x	7.5	6.75	10.81	3.237	0.629	4.252	0.11
6(1)_L5	12.00	8.72	5.5	8.72	1	20.0	0.840	0.800	0.000	0.000	1.640	(3)2x	6	(2)2x	7.5	6.75	10.81	5.416	0.000	10.098	0.26
6(1)_L4	12.00	8.72	5.5	8.72	1	20.0	0.840	0.800	0.000	0.000	3.280	(3)2x	6	(2)2x	7.5	6.75	10.81	8.430	0.000	16.778	0.44
6(1)_L3	12.00	8.72	5.5	8.72	1	20.0	0.840	0.800	0.000	0.000	4.920	(3)2x	6	(2)2x	7.5	6.75	10.81	11.997	0.000	24.012	0.63
6(1)_L2	12.00	8.72	5.5	8.72	1	20.0	0.840	0.800	0.000	0.000	6.560	(3)2x	6	(2)2x	7.5	6.75	10.81	15.866	0.000	31.547	0.82
6(2)_MR	7.00	8.72	5.5	8.72	5	26.1	0.784	1.045	0.000	0.000	1.829	(2)2x	6	(2)2x	6	6	6.00	0.641	0.677	3.050	0.10
6(2)_L5	7.00	8.72	5.5	8.72	1	4.9	0.205	0.195	0.000	0.000	2.229	(2)2x	6	(2)2x	6	6	6.00	1.800	0.778	5.852	0.19
6(2)_L4	7.00	8.72	5.5	8.72	1	4.9	0.205	0.195	0.000	0.000	2.628	(2)2x	6	(2)2x	6	6	6.00	3.836	0.264	9.531	0.31
6(2)_L3	7.00	8.72	5.5	8.72	1	4.9	0.205	0.195	0.000	0.000	3.028	(2)2x	6	(2)2x	6	6	6.00	6.454	0.000	13.791	0.45
6(2)_L2	7.00	8.72	5.5	8.72	1	4.9	0.205	0.195	0.000	0.000	3.428	(2)2x	6	(2)2x	6	6	6.00	9.390	0.000	18.369	0.60
6(3)_MR	8.67	8.72	5.5	8.72	3	26.0	0.702	0.000	0.520	2.704	3.926	(2)2x	6	(2)2x	6	6	7.67	0.000	0.000	5.110	0.17
6(3)_L5	8.67	8.72	5.5	8.72	1	10.0	0.420	0.400	0.000	0.000	4.746	(2)2x	6	(2)2x	6	6	7.67	1.147	0.023	8.257	0.27
6(3)_L4	8.67	8.72	5.5	8.72	1	10.0	0.420	0.400	0.000	0.000	5.566	(2)2x	6	(2)2x	6	6	7.67	3.327	0.000	12.254	0.40
6(3)_L3	8.67	8.72	5.5	8.72	1	10.0	0.420	0.400	0.000	0.000	6.386	(2)2x	6	(2)2x	6	6	7.67	6.071	0.000	16.815	0.55
6(3)_L2	8.67	8.72	5.5	8.72	1	10.0	0.420	0.400	0.000	0.000	7.206	(2)2x	6	(2)2x	6	6	7.67	9.122	0.000	21.683	0.71
7(1)_HR	8.83	4.73	CMU	4.73	3	26.1	0.705	0.000	0.523	2.717	3.945	CMU	CMU	CMU	N/A	N/A	N/A	N/A	N/A	N/A	CMU
7(1)_MR	8.83	8.72	CMU	8.72	3	4.9	0.132	0.000	0.098	0.507	4.681	CMU	CMU	CMU	N/A	N/A	N/A	N/A	N/A	N/A	CMU
7(1)_L5	8.83	8.72	CMU	8.72	1	4.9	0.205	0.195	0.000	0.000	5.081	CMU	CMU	CMU	N/A	N/A	N/A	N/A	N/A	N/A	CMU
7(1)_L4	8.83	8.72	CMU	8.72	1	4.9	0.205	0.195	0.000	0.000	5.481	CMU	CMU	CMU	N/A	N/A	N/A	N/A	N/A	N/A	CMU
7(1)_L3	8.83	8.72	CMU	8.72	1	4.9	0.205	0.195	0.000	0.000	5.880	CMU	CMU	CMU	N/A	N/A	N/A	N/A	N/A	N/A	CMU
7(1)_L2	8.83	8.72	CMU	8.72	1	0.0	0.000	0.000	0.000	0.000	5.880	CMU	CMU	CMU	N/A	N/A	N/A	N/A	N/A	N/A	CMU
7(2)_MR	12.00	8.72	5.5	8.72	3	32.0	0.864	0.000	0.640	3.328	4.832	(2)2x	6	(2)2x	6	6	11.00	0.000	0.000	5.848	0.19
7(2)_L5	12.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	5.324	(2)2x	6	(2)2x	6	6	11.00	0.236	0.000	8.684	0.28
7(2)_L4	12.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	5.816	(2)2x	6	(2)2x	6	6	11.00	2.478	0.000	12.502	0.41
7(2)_L3	12.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	6.308	(2)2x	6	(2)2x	6	6	11.00	5.372	0.000	16.973	0.55
7(2)_L2	12.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	6.800	(2)2x	6	(2)2x	6	6	11.00	8.594	0.000	21.772	0.71
7(3)_MR	9.50	8.72	5.5	8.72	3	32.0	0.864	0.000	0.640	3.328	4.832	(2)2x	6	(2)2x	6	6	8.50	0.000	0.000	5.873	0.19
7(3)_L5	9.50	8.72	5.5	8.72	1	0.0	0.000	0.000	0.000	0.000	4.832	(2)2x	6	(2)2x	6	6	8.50	1.243	0.000	8.274	0.27
7(3)_L4	9.50	8.72	5.5	8.72	1	0.0	0.000	0.000	0.000	0.000	4.832	(2)2x	6	(2)2x	6	6	8.50	4.106	0.166	11.682	0.38
7(3)_L3	9.50	8.72	5.5	8.72	1	0.0	0.000	0.000	0.000	0.000	4.832	(2)2x	6	(2)2x	6	6	8.50	7.637	0.176	15.759	0.51
7(3)_L2	9.50	8.72	5.5	8.72	1	0.0	0.000	0.000	0.000	0.000	4.832	(2)2x	6	(2)2x	6	6	8.50	11.504	0.000	20.170	0.66
8(1)_HR	12.00	14.00	5.5	16.50	3	0.0	0.000	0.000	0.000	0.000	0.000	(3)2x	6	(2)2x	7.5	6.75	10.81	1.744	4.752	2.411	0.19
8(1)_MR	12.00	8.72	5.5	8.72	5	0.0	0.000	0.000	0.000	0.000	0.000	(3)2x	6	(2)2x	7.5	6.75	10.81	6.261	0.977	7.276	0.19
8(1)_L5	12.00	8.72	5.5	8.72	1	10.0	0.420	0.400	0.000	0.000	0.820	(3)2x	6	(2)2x	7.5	6.75	10.81	10.437	0.000	13.628	0.36
8(1)_L4	12.00	8.72	5.5	8.72	1	10.0	0.420	0.400	0.000	0.000	1.640	(3)2x	6	(2)2x	7.5	6.75	10.81	15.155	0.000	20.521	0.53
8(1)_L3	12.00	8.72	5.5	8.72	1	10.0	0.420	0.400	0.000	0.000	2.460	(3)2x	6	(2)2x	7.5	6.75	10.81	20.230	0.000	27.771	0.72
8(1)_L2	12.00	8.72	5.5	8.72	1	10.0	0.420	0.400	0.000	0.000	3.280	(3)2x	6	(3)2x	7.5	7.5	10.75	25.633	0.000	35.387	0.77
8(2)_HR	12.00	6.50	5.5	6.50	3	16.0	0.432	0.000	0.320	1.664	2.416	(2)2x	6	(2)2x	6	6	11.00	0.000	0.000	2.957	0.07
8(2)_MR	12.00	8.72	5.5	8.72	3	6.0	0.162	0.000	0.120	0.624	3.322	(2)2x	6	(2)2x	6	6	11.00	0.333	0.000	5.519	0.18
8(2)_L5	12.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	3.814	(2)2x	6	(2)2x	6	6	11.00	1.605	0.000	8.368	0.27
8(2)_L4	12.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	4.306	(2)2x	6	(2)2x	6	6	11.00	3.409	0.000	11.749	0.38
8(2)_L3	12.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	4.798	(2)2x	6	(2)2x	6	6	11.00	5.565	0.000	15.481	0.50
8(2)_L2	12.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	5.290	(2)2x	6	(2)2x	6	6	11.00	7.897	0.000	19.390	0.63
8(3)_HR	18.00	6.50	5.5	6.50	3	0.0	0.000	0.000	0.000	0.000	0.000	(2)2x	6	(2)2x	6	6	17.00	0.000	0.000	0.525	0.01
8(3)_MR	18.00	8.72	5.5	8.72	3	6.0	0.162	0.000	0.120	0.624	0.906	(2)2x	6	(2)2x	6	6	17.00	0.000	0.000	3.038	0.10
8(3)_L5	18.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	1.398	(2)2x	6	(2)2x	6	6	17.00	0.127	0.000	5.818	0.19
8(3)_L4	18.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	1.890	(2)2x	6	(2)2x	6	6	17.00	1.351	0.000	9.114	0.30
8(3)_L3	18.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	2.382	(2)2x	6	(2)2x	6	6	17.00	2.918	0.000	12.751	0.42
8(3)_L2	18.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	2.874	(2)2x	6	(2)2x	6	6	17.00	4.655	0.000	16.560	0.54

KL&A Engineers & Builders

Title	Basecamp Phase II			Date	3 5 26	Job No.	25336
Subject	Anchor-Rod Boundary B			By	APS	Sheet	

Level	Story Height [ft]	Framing Depth [in]	Stud Height [in]
HR	6.229	17	57.75
MR	10.646	23.125	104.63
L5	10.490	21.25	104.63
L4	10.490	21.25	104.63
L3	10.490	21.25	104.63
L2	10.490	21.25	104.63

Flat Load Cases	Type	Dead [psf]	Live [psf]	Roof Live [psf]	Snow [psf]
1	Floor	42	40	0	0
2	Balcony	46	60	0	0
3	Roof	27	0	20	104
4	Exit Ways	41	100	0	0
5	Loft	30	40	0	0
6	0	0	0	0	0

Stud Grade:	DF-L No. 2		CD =	1.6	CT =	1.088	
Fc =	1350	psi	Cm =	1.0	Km =	1200	
Fc* =	1728	psi	Ct =	1.0	KT =	0.82	
E =	1600000	psi	CF =	1.0	le =	96	in
Emin =	580000	psi	Ci =	0.8	c =	0.8	
Emin' =	504741.5	psi					

Shear Wall Mark	Wall Pier Length [ft]	Wall Height [ft]	Boundary Post B (East or North Side of Pier)																		
			Wall Thick 'd' [in]	Post Height	Flat Load Case	Post Loading						Compression Posts			End Offset		OMA [ft]	Rod Tension [kips]	TUD Bearing [kips]	Post Comp P_U [kips]	Post D/C
						Trib Area to Post [sf]	P_{DL} [kips]	P_{LL} [kips]	P_{RLL} [kips]	P_{SL} [kips]	$P_{U'}$ [kips]	Exterior	Cavity [in]	Interior	Xt [in]	Xc [in]					
8(4)_HR	9.00	6.50	5.5	6.50	3	0.0	0.000	0.000	0.000	0.000	0.000	(2)2x	6	(2)2x	6	6	8.00	0.000	0.000	0.558	0.01
8(4)_MR	9.00	8.72	5.5	8.72	3	6.0	0.162	0.000	0.120	0.624	0.906	(2)2x	6	(2)2x	6	6	8.00	0.824	0.481	3.172	0.10
8(4)_L5	9.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	1.398	(2)2x	6	(2)2x	6	6	8.00	2.416	0.210	6.094	0.20
8(4)_L4	9.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	1.890	(2)2x	6	(2)2x	6	6	8.00	4.555	0.000	9.565	0.31
8(4)_L3	9.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	2.382	(2)2x	6	(2)2x	6	6	8.00	7.059	0.000	13.399	0.44
8(4)_L2	9.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	2.874	(2)2x	6	(2)2x	6	6	8.00	9.743	0.000	17.415	0.57
9(1)_HR	6.00	7.00	5.5	7.00	3	10.0	0.270	0.000	0.200	1.040	1.510	(3)2x	6	(2)2x	7.5	6.75	4.81	0.000	0.000	1.510	0.03
9(1)_MR	6.00	10.33	5.5	10.33	5	0.0	0.000	0.000	0.000	0.000	1.510	(3)2x	6	(2)2x	7.5	6.75	4.81	0.000	3.886	1.510	0.05
9(1)_L5	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	1.510	(3)2x	6	(2)2x	7.5	6.75	4.81	0.000	1.019	2.914	0.10
9(1)_L4	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	1.510	(3)2x	6	(2)2x	7.5	6.75	4.81	1.802	1.557	5.345	0.18
9(1)_L3	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	1.510	(3)2x	6	(2)2x	7.5	6.75	4.81	4.456	1.759	8.459	0.28
9(1)_L2	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	1.510	(3)2x	6	(2)2x	7.5	6.75	4.81	7.447	1.626	11.909	0.39
9(2)_HR	6.00	11.50	5.5	11.50	3	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	1.961	1.059	2.832	0.10
9(2)_L5	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	4.704	1.349	6.053	0.17
9(2)_L4	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	8.516	1.908	10.344	0.28
9(2)_L3	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	13.038	2.118	15.343	0.42
9(2)_L2	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	17.910	1.980	20.694	0.57
9(3)_HR	6.00	11.50	5.5	11.50	3	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	1.961	1.059	2.832	0.10
9(3)_L5	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	4.704	1.349	6.053	0.17
9(3)_L4	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	8.516	1.908	10.344	0.28
9(3)_L3	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	13.038	2.118	15.343	0.42
9(3)_L2	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	17.910	1.980	20.694	0.57
9(4)_HR	6.00	11.50	5.5	11.50	3	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	1.961	1.059	2.832	0.10
9(4)_L5	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	4.704	1.349	6.053	0.17
9(4)_L4	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	8.516	1.908	10.344	0.28
9(4)_L3	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	13.038	2.118	15.343	0.42
9(4)_L2	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	17.910	1.980	20.694	0.57
A(1)_MR	6.50	8.72	5.5	8.72	3	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	5.13	0.505	0.339	0.917	0.02
A(1)_L5	6.50	10.18	5.5	10.18	1	10.0	0.420	0.400	0.000	0.000	0.820	(4)2x	6	(2)2x	9	7.5	5.13	1.671	1.545	3.825	0.11
A(1)_L4	6.50	10.18	5.5	10.18	1	10.0	0.420	0.400	0.000	0.000	1.640	(4)2x	6	(2)2x	9	7.5	5.13	4.084	1.735	7.980	0.22
A(1)_L3	6.50	10.18	5.5	10.18	1	10.0	0.420	0.400	0.000	0.000	2.460	(4)2x	6	(2)2x	9	7.5	5.13	7.607	1.884	13.245	0.36
A(1)_L2	6.50	10.18	5.5	10.18	1	10.0	0.420	0.400	0.000	0.000	3.280	(4)2x	6	(2)2x	9	7.5	5.13	12.156	1.958	19.536	0.54
A(2)_HR	7.25	7.00	5.5	9.33	3	16.0	0.432	0.000	0.320	1.664	2.416	(4)2x	6	(2)2x	9	7.5	5.88	0.441	0.336	3.665	0.09
A(2)_MR	7.25	10.33	5.5	10.33	3	18.0	0.486	0.000	0.360	1.872	5.134	(4)2x	6	(2)2x	9	7.5	5.88	2.622	0.013	9.410	0.27
A(2)_L5	7.25	10.18	5.5	10.18	1	12.0	0.504	0.480	0.000	0.000	6.118	(4)2x	6	(2)2x	9	7.5	5.88	5.755	0.089	14.528	0.40
A(2)_L4	7.25	10.18	5.5	10.18	1	12.0	0.504	0.480	0.000	0.000	7.102	(4)2x	6	(2)2x	9	7.5	5.88	9.732	0.171	20.489	0.56
A(2)_L3	7.25	10.18	5.5	10.18	1	12.0	0.504	0.480	0.000	0.000	8.086	(4)2x	6	(2)2x	9	7.5	5.88	14.619	0.212	27.362	0.75
A(2)_L2	7.25	10.18	5.5	10.18	1	12.0	0.504	0.480	0.000	0.000	9.070	(4)2x	6	(3)2x	9	8.25	5.81	21.072	0.186	35.860	0.85
B.2(1)_HR	16.00	15.00	5.5	12.08	3	0.0	0.000	0.000	0.000	0.000	0.000	(2)2x	6	(2)2x	6	6	15.00	0.000	0.847	0.728	0.04
B.2(1)_MR	16.00	8.72	5.5	8.72	5	28.0	0.840	1.120	0.000	0.000	1.960	(2)2x	6	(2)2x	6	6	15.00	1.621	0.000	4.934	0.16
B.2(1)_L5	16.00	8.72	5.5	8.72	1	28.0	1.176	1.120	0.000	0.000	4.256	(2)2x	6	(2)2x	6	6	15.00	2.612	0.000	11.033	0.36
B.2(1)_L4	16.00	8.72	5.5	8.72	1	28.0	1.176	1.120	0.000	0.000	6.552	(2)2x	6	(2)2x	6	6	15.00	5.012	0.000	18.541	0.60
B.2(1)_L3	16.00	8.72	5.5	8.72	1	28.0	1.176	1.120	0.000	0.000	8.848	(2)2x	6	(3)2x	6	6.75	14.94	8.766	0.000	27.443	0.72
B.2(1)_L2	16.00	8.72	5.5	8.72	1	28.0	1.176	1.120	0.000	0.000	11.144	(2)2x	6	(4)2x	6	7.5	14.88	13.787	0.000	37.636	0.82
B.7(1)_HR	12.00	14.00	5.5	12.08	3	0.0	0.000	0.000	0.000	0.000	0.000	(2)2x	6	(2)2x	6	6	11.00	0.000	0.806	0.651	0.04
B.7(1)_MR	12.00	8.72	5.5	8.72	5	0.0	0.000	0.000	0.000	0.000	0.000	(2)2x	6	(2)2x	6	6	11.00	1.980	0.951	2.979	0.10
B.7(1)_L5	12.00	8.72	5.5	8.72	1	26.0	1.092	1.040	0.000	0.000	2.132	(2)2x	6	(2)2x	6	6	11.00	3.834	0.000	8.957	0.29
B.7(1)_L4	12.00	8.72	5.5	8.72	1	26.0	1.092	1.040	0.000	0.000	4.264	(2)2x	6	(2)2x	6	6	11.00	6.787	0.000	16.033	0.52
B.7(1)_L3	12.00	8.72	5.5	8.72	1	26.0	1.092	1.040	0.000	0.000	6.396	(2)2x	6	(2)2x	6	6	11.00	10.469	0.000	23.838	0.78
B.7(1)_L2	12.00	8.72	5.5	8.72	1	26.0	1.092	1.040	0.000	0.000	8.528	(2)2x	6	(3)2x	6	6.75	10.94	14.711	0.000	32.256	0.84
C.3(1)_MR	8.00	8.72	5.5	8.72	5	26.0	0.780	1.040	0.000	0.000	1.820	(2)2x	6	(2)2x	6	6	7.00	0.866	0.049	3.748	0.12
C.3(1)_L5	8.00	8.72	5.5	8.72	1	26.0	1.092	1.040	0.000	0.000	3.952	(2)2x	6	(2)2x	6	6	7.00	2.978	0.000	9.383	0.31
C.3(1)_L4	8.00	8.72	5.5	8.72	1	26.0	1.092	1.040	0.000	0.000	6.084	(2)2x	6	(2)2x	6	6	7.00	6.263	0.000	16.192	0.53
C.3(1)_L3	8.00	8.72	5.5	8.72	1	26.0	1.092	1.040	0.000	0.000	8.216	(2)2x	6	(2)2x	6	6	7.00	10.327	0.000	23.779	0.77
C.3(1)_L2	8.00	8.72	5.5	8.72	1	26.0	1.092	1.040	0.000	0.000	10.348	(2)2x	6	(3)2x	6	6.75	6.94	14.905	0.000	31.940	0.83
C.3(2)_HR	7.00	15.00	5.5	14.00	3	0.0	0.000	0.000	0.000	0.000	10.348	(3)2x	6	(2)2x	7.5	6.75	5.81	0.614	2.110	11.410	0.66
C.3(2)_MR	7.00	8.72	5.5	8.72	5	0.0	0.000	0.000	0.000	0.000	10.348	(3)2x	6	(2)2x	7.5	6.75	5.81	4.006	1.821	15.022	0.39
C.3(2)_L5	7.00	8.72	5.5	8.72	1	26.0	1.092	1.040	0.000	0.000	12.480	(3)2x	6	(2)2x	7.5	6.75	5.81	8.057	0.276	22.488	0.59
C.3(2)_L4	7.00	8.72	5.5	8.72	1	26.0	1.092	1.040	0.000	0.000	14.612	(3)2x	6	(3)2x	7.5	7.5	5.75	13.490	0.000	31.370	0.68
C.3(2)_L3	7.00	8.72	5.5	8.72	1	26.0	1.092	1.040	0.000	0.000	16.744	(3)2x	6	(4)2x	7.5	8.25	5.69	19.880	0.000	41.239	0.77
C.3(2)_L2	7.00	8.72	5.5	8.72	1	26.0	1.092	1.040	0.000	0.000	18.876	(3)2x	6	(5)2x	7.5	9	5.63	26.827	0.000	51.696	0.84
C.6(1)_HR	9.83	4.73	CMU	4.73	3	13.7	0.369	0.000	0.273	1.421	2.064	CMU	CMU	CMU	N/A	N/A	N/A	N/A	N/A	N/A	CMU
C.6(1)_MR	9.83	8.72	CMU	8.72	3	13.7	0.369	0.000	0.273	1.421	4.127	CMU	CMU	CMU	N/A	N/A	N/A	N/A	N/A	N/A	CMU
C.6(1)_L5	9.83	8.72	CMU	8.72	1	13.7	0.574	0.547	0.000	0.000	5.248	CMU	CMU	CMU	N/A	N/A	N/A	N/A	N/A	N/A	CMU
C.6(1)_L4	9.83	8.72	CMU	8.72	1	13.7	0.574	0.547	0.000	0.000	6.369	CMU	CMU	CMU	N/A	N/A	N/A	N/A	N/A	N/A	CMU
C.6(1)_L3	9.83	8.72	CMU	8.72	1	0.0	0.000	0.000	0.000	0.000	6.369	CMU	CMU	CMU	N/A	N/A	N/A	N/A	N/A	N/A	CMU
C.6(1)_L2	9.83	8.72	CMU	8.72	1	0.0	0.000	0.000	0.000	0.000	6.369	CMU	CMU	CMU	N/A	N/A	N/A	N/A	N/A	N/A	CMU
C.6(2)_HR	11.33	14.00	5.5	12.08	3	0.0	0.000	0.000	0.000	0.000	6.369	(3)2x	6	(2)2x	7.5	6.75	10.15	0.000	0.436	7.260	0.32
C.6(2)_MR	11.33	8.72	5.5	8.72	5	0.0	0.000	0.000	0.000	0.000	6.369	(3)2x	6	(2)2x	7.5	6.75	10.15	2.374	0.401	10.643	0.28
C.6(2)_L5	11.33	8.72	5.5	8.72	1	26.0	1.092	1.040	0.000	0.000	8.501	(3)2x	6	(2)2x	7.5	6.75	10.15	5.502	0.000	17.829	0.46
C.6(2)_L4	11.33	8.72	5.5	8.72	1	26.0	1.092	1.040	0.000	0.000	10.633	(3)2x	6	(2)2x	7.5	6.75	10.15	9.891	0.000	26.275	0.69
C.6(2)_L3	11.33	8.72	5.5	8.72	1	26.0	1.092	1.040	0.000	0.000	12.765	(3)2x	6	(3)2x	7.5	7.5	10.08	15.209	0.000	35.700	0.78
C.6(2)_L2	11.33	8.72	5.5	8.72	1	26.0	1.092	1.040	0.000	0.000	14.897	(3)2x	6	(4)2x	7.5	8.25	10.02	21.008	0.000	45.629	0.85
E(1)_MR	16.00	8.72	5.5	8.72	3	35.0	0.945	0.000	0.700	3.640	5.285	(2)2x	6	(2)2x	6	6	15.00	0.000	0.000	5.772	0.19
E(1)_L5	16.00	8.72	5.5	8.72	1	0.0	0.000	0.000	0.000	0.000	5.285	(2)2x	6	(2)2x	6	6	15.00	0.000	0.000	6.760	0.22
E(1)_L4	16.00	8.72	5.5	8.72	1	0.0	0.000	0.000	0.000	0.000	5.285	(2)2x	6	(2)2x	6	6	15.00	0.000	0.000	8.119	0.26
E(1)_L3	16.00	8.72	5.5	8.72	1	0.0	0.000	0.000	0.000	0.000	5.285	(2)2x	6	(2)2x	6	6	15.00	0.000	0.000	9.726	0.32
E(1)_L2	16.00	8.72	5.5	8.72	1	0.0	0.000	0.000	0.000	0.000	5.285	(2)2x	6	(2)2x	6	6	15.00	0.000	0.000	11.453	0.37
E(2)_MR	14.00	8.72	5.5	8.72	3	35.0	0.945	0.000	0.700	3.640	5.285	(2)2x	6	(2)2x	6	6	13.00	0.000	0.000	5.777	0.19
E(2)_L5	14.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	5.777	(2)2x	6	(2)2x	6	6	13.00	0.000	0.000	7.266	0.24
E(2)_L4	14.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	6.269	(2)2x	6	(2)2x	6	6	13.00	0.000	0.000	9.131	0.30
E(2)_L3	14.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	6.761	(2)2x	6	(2)2x	6	6	13.00	0.000	0.000	11.245	0.37
E(2)_L2	14.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	7.253	(2)2x	6	(2)2x	6	6	13.00	0.000	0.000	13.481	0.44
E(3)_MR	10.00	8.72	5.5	8.72	3	35.0	0.945	0.000	0.700	3.640	5.285	(2)2x	6	(2)2x	6	6	9.00	0.000	0.000	5.792	0.19
E(3)_L5	10.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	5.777	(2)2x	6	(2)2x	6	6	9.00	0.000	0.000	7.313	0.24
E(3)_L4	10.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	6.269	(2)2x	6	(2)2x	6	6	9.00	0.000	0.000	9.222	0.30
E(3)_L3	10.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	6.761	(2)2x	6	(2)2x	6	6	9.00	0.000	0.000	11.387	0.37
E(3)_L2	10.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	7.253	(2)2x	6	(2)2x	6	6	9.00	0.832	0.000	13.678	0.45
F(1)_HR	8.00	5.00	5.5	5.00	3	0.0	0.000	0.000	0.000	0.000	0.000	(2)2x	6	(2)2x	6	6	7.00	0.270	0.071	1.008	0.02
F(1)_MR	8.00	8.72	5.5	8.72	3	6.0	0.162	0.000	0.120	0.624	0.906	(2)2x	6	(2)2x	6	6	7.00	2.568	0.956	4.710	0.15
F(1)_L5	8.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	1.398	(2)2x	6	(2)2x	6	6	7.00	5.678	1.070	9.069	0.30
F(1)_L4	8.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	1.890	(2)2x	6	(2)2x	6	6	7.00	9.603	0.989	14.244	0.46
F(1)_L3	8.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	2.382	(2)2x	6	(2)2x	6	6	7.00	14.068	0.681	19.959	0.65
F(1)_L2	8.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	2.874	(2)2x	6	(2)2x	6	6	7.00	18.798	0.143	25.938	0.85

KL&A Engineers & Builders

Title	Basecamp Phase II			Date	3 5 26	Job No.	25336
Subject	Anchor-Rod Boundary B			By	APS	Sheet	

Level	Story Height [ft]	Framing Depth [in]	Stud Height [in]
HR	6.229	17	57.75
MR	10.646	23.125	104.63
L5	10.490	21.25	104.63
L4	10.490	21.25	104.63
L3	10.490	21.25	104.63
L2	10.490	21.25	104.63

Flat Load Cases	Type	Dead [psf]	Live [psf]	Roof Live [psf]	Snow [psf]
1	Floor	42	40	0	0
2	Balcony	46	60	0	0
3	Roof	27	0	20	104
4	Exit Ways	41	100	0	0
5	Loft	30	40	0	0
6	0	0	0	0	0

Stud Grade:	DF-L No. 2		CD =	1.6	CT =	1.088	
Fc =	1350	psi	Cm =	1.0	Km =	1200	
Fc* =	1728	psi	Ct =	1.0	KT =	0.82	
E =	1600000	psi	CF =	1.0	le =	96	in
Emin =	580000	psi	Ci =	0.8	c =	0.8	
Emin' =	504741.5	psi					

Shear Wall Mark	Wall Pier Length [ft]	Wall Height [ft]	Boundary Post B (East or North Side of Pier)																		
			Wall Thick 'd' [in]	Post Height	Flat Load Case	Post Loading						Compression Posts			End Offset		OMA [ft]	Rod Tension [kips]	TUD Bearing [kips]	Post Comp P_U [kips]	Post D/C
						Trib Area to Post [sf]	P_{DL} [kips]	P_{LL} [kips]	P_{RLL} [kips]	P_{SL} [kips]	$P_{U'}$ [kips]	Exterior	Cavity [in]	Interior	Xt [in]	Xc [in]					
F(2)_HR	34.00	5.00	5.5	5.00	3	0.0	0.000	0.000	0.000	0.000	0.000	(2)2x	6	(2)2x	6	6	33.00	0.000	0.000	0.909	0.02
F(2)_MR	34.00	8.72	5.5	8.72	3	6.0	0.162	0.000	0.120	0.624	0.906	(2)2x	6	(2)2x	6	6	33.00	0.000	0.000	4.335	0.14
F(2)_L5	34.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	1.398	(2)2x	6	(2)2x	6	6	33.00	0.000	0.000	8.314	0.27
F(2)_L4	34.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	1.890	(2)2x	6	(2)2x	6	6	33.00	0.596	0.000	13.027	0.42
F(2)_L3	34.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	2.382	(2)2x	6	(2)2x	6	6	33.00	2.402	0.000	18.228	0.59
F(2)_L2	34.00	8.72	5.5	8.72	1	6.0	0.252	0.240	0.000	0.000	2.874	(2)2x	6	(2)2x	6	6	33.00	4.446	0.000	23.667	0.77
G(1)_HR	7.50	11.50	5.5	11.50	3	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	6.13	2.483	1.365	3.510	0.12
G(1)_L5	7.50	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	6.13	5.302	1.691	6.894	0.19
G(1)_L4	7.50	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	6.13	9.001	1.980	11.157	0.31
G(1)_L3	7.50	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	6.13	13.283	1.982	16.004	0.44
G(1)_L2	7.50	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	6.13	17.851	1.695	21.136	0.58
G(2)_HR	7.50	11.50	5.5	11.50	3	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	6.13	2.483	1.365	3.510	0.12
G(2)_L5	7.50	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	6.13	5.302	1.691	6.894	0.19
G(2)_L4	7.50	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	6.13	9.001	1.980	11.157	0.31
G(2)_L3	7.50	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	6.13	13.283	1.982	16.004	0.44
G(2)_L2	7.50	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	6.13	17.851	1.695	21.136	0.58
G(3)_HR	6.00	11.50	5.5	11.50	3	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	2.848	1.663	3.719	0.13
G(3)_L5	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	5.954	2.128	7.304	0.20
G(3)_L4	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	9.993	2.555	11.820	0.33
G(3)_L3	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	14.649	2.676	16.955	0.47
G(3)_L2	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	19.609	2.491	22.393	0.62
G(4)_HR	6.00	11.50	5.5	11.50	3	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	4.63	2.848	1.663	3.719	0.13
G(4)_L5	6.00	10.18	5.5	10.18	1	1.8	0.074	0.070	0.000	0.000	0.144	(4)2x	6	(2)2x	9	7.5	4.63	5.954	2.084	7.447	0.21
G(4)_L4	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.144	(4)2x	6	(2)2x	9	7.5	4.63	9.993	2.555	11.964	0.33
G(4)_L3	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.144	(4)2x	6	(2)2x	9	7.5	4.63	14.649	2.676	17.099	0.47
G(4)_L2	6.00	10.18	5.5	10.18	1	0.0	0.000	0.000	0.000	0.000	0.144	(4)2x	6	(2)2x	9	7.5	4.63	19.609	2.491	22.536	0.62
G(5)_HR	7.50	11.50	5.5	11.50	3	0.0	0.000	0.000	0.000	0.000	0.000	(4)2x	6	(2)2x	9	7.5	6.13	2.111	0.993	3.510	0.12
G(5)_L5	7.50	10.18	5.5	10.18	1	22.0	0.924	0.880	0.000	0.000	1.804	(4)2x	6	(2)2x	9	7.5	6.13	4.351	0.186	8.698	0.24
G(5)_L4	7.50	10.18	5.5	10.18	1	22.0	0.924	0.880	0.000	0.000	3.608	(4)2x	6	(2)2x	9	7.5	6.13	7.472	0.000	14.765	0.41
G(5)_L3	7.50	10.18	5.5	10.18	1	22.0	0.924	0.880	0.000	0.000	5.412	(4)2x	6	(2)2x	9	7.5	6.13	11.175	0.000	21.416	0.59
G(5)_L2	7.50	10.18	5.5	10.18	1	22.0	0.924	0.880	0.000	0.000	7.216	(4)2x	6	(2)2x	9	7.5	6.13	15.165	0.000	28.352	0.78

KL&A Engineers & Builders

Title	Basecamp Phase II	Date	3 5 26	Job No.	25336
Subject	Anchor-Rod Summary A	By	APS	Sheet	

Rod Assembly Run	High Roof					Main Roof					Level 5					Level 4					Level 3					Level 2				
	RTUD	BPRTUD Plate	Assembly Bearing Capacity [lbs]	Tension Rod	Tension Rod Capacity [lbs]	RTUD	BPRTUD Plate	Assembly Bearing Capacity [lbs]	Tension Rod	Tension Rod Capacity [lbs]	ATUD	Bearing Plate	Assembly Bearing Capacity [lbs]	Tension Rod	Tension Rod Capacity [lbs]	ATUD	Bearing Plate	Assembly Bearing Capacity [lbs]	Tension Rod	Tension Rod Capacity [lbs]	ATUD	Bearing Plate	Assembly Bearing Capacity [lbs]	Tension Rod	Tension Rod Capacity [lbs]	ATUD	Bearing Plate	Assembly Bearing Capacity [lbs]	Tension Rod	Tension Rod Capacity [lbs]
3	RTUD4B	BPRTUD3-4B	6415	ATR1/2	4270	RTUD5	BPRTUD5-6B	10295	ATR5/8	6675	ATUD6-2	PL6-3x5.5	10275	ATS-SR5H	13805	ATUD6-2	PL6-3x5.5	10275	ATS-HSR6	19880	ATUD9-2	PL9-5x5.5	12790	ATS-SR7H	27060	ATUD9	PL9-5x5.5	15560	ATS-SR7H	27060
2	RTUD4B	BPRTUD3-4B	6415	ATR1/2	4270	RTUD4B	BPRTUD3-4B	6415	ATR1/2	4270	ATUD6-2	PL6-3x3.5	6720	ATR5/8	6675	ATUD6-2	PL6-3x5.5	10275	ATS-SR5H	13805	ATUD6-2	PL6-3x5.5	10275	ATS-SR6H	19880	ATUD9	PL9-5x5.5	15560	ATS-SR6H	19880
1	RTUD3B	BPRTUD3-4B	5180	ATR3/8	2400	RTUD3B	BPRTUD3-4B	5180	ATR3/8	2400	ATUD6-2	PL6-3x3.5	6720	ATR1/2	4270	ATUD6-2	PL6-3x5.5	10275	ATR5/8	6675	ATUD6-2	PL6-3x5.5	10275	ATR5/8	6675	ATUD6-2	PL6-3x3.5	6720	ATR5/8	6675
	2.848	4.752	11.410			6.261	4.043	15.022			10.437	2.128	22.488			15.155	2.555	31.370			20.230	2.676	41.239			26.827	2.491	51.696		

Pier Stack Number	Run	Boundary A																												
		HR					MR					L5					L4					L3					L2				
		Rod Tension [kips]	TUD Bearing [kips]	Post Comp [kips]	Exterior Boundary Stud	Interior Boundary Stud	Rod Tension [kips]	TUD Bearing [kips]	Post Comp [kips]	Exterior Boundary Stud	Interior Boundary Stud	Rod Tension [kips]	TUD Bearing [kips]	Post Comp [kips]	Exterior Boundary Stud	Interior Boundary Stud	Rod Tension [kips]	TUD Bearing [kips]	Post Comp [kips]	Exterior Boundary Stud	Interior Boundary Stud	Rod Tension [kips]	TUD Bearing [kips]	Post Comp [kips]	Exterior Boundary Stud	Interior Boundary Stud	Rod Tension [kips]	TUD Bearing [kips]	Post Comp [kips]	Exterior Boundary Stud	Interior Boundary Stud
1(1)	1	0.000	0.000	1.537	(2)2x	(2)2x	0.000	0.000	3.169	(2)2x	(2)2x	0.000	0.000	5.493	(2)2x	(2)2x	0.423	0.000	8.076	(2)2x	(2)2x	1.116	0.000	10.832	(2)2x	(2)2x	1.893	0.000	13.672	(2)2x	(2)2x
1(2)	1	-	-	-	-	-	0.000	0.000	1.005	(2)2x	(2)2x	0.000	0.000	2.596	(2)2x	(2)2x	0.000	0.000	4.524	(2)2x	(2)2x	0.000	0.000	6.764	(2)2x	(2)2x	0.000	0.000	9.288	(2)2x	(2)2x
2(1)	3	0.615	2.037	4.516	(3)2x	(2)2x	4.326	0.980	8.485	(3)2x	(2)2x	8.184	0.380	14.831	(3)2x	(2)2x	13.105	0.000	23.222	(3)2x	(2)2x	18.891	0.000	32.528	(3)2x	(3)2x	26.359	0.000	43.544	(3)2x	(4)2x
2(2)	2	-	-	-	-	-	0.947	1.555	1.418	(2)2x	(2)2x	2.124	0.513	5.925	(2)2x	(2)2x	4.618	0.000	11.750	(2)2x	(2)2x	8.327	0.000	18.790	(2)2x	(2)2x	13.147	0.000	26.940	(2)2x	(2)2x
4(1)	2	0.436	1.812	1.103	(3)2x	(2)2x	3.254	0.876	4.270	(3)2x	(2)2x	5.274	0.000	10.619	(3)2x	(2)2x	8.217	0.000	17.893	(3)2x	(2)2x	11.982	0.000	25.987	(3)2x	(2)2x	17.270	0.000	35.667	(3)2x	(3)2x
4(2)	2	-	-	-	-	-	0.912	1.423	1.382	(2)2x	(2)2x	1.921	0.280	5.723	(2)2x	(2)2x	4.129	0.000	11.261	(2)2x	(2)2x	7.442	0.000	17.905	(2)2x	(2)2x	11.766	0.000	25.559	(2)2x	(2)2x
5(1)	2	0.026	0.876	0.682	(2)2x	(2)2x	1.633	0.210	2.631	(2)2x	(2)2x	2.238	0.000	7.361	(2)2x	(2)2x	3.520	0.000	12.768	(2)2x	(2)2x	5.673	0.000	19.046	(2)2x	(2)2x	8.498	0.000	25.995	(2)2x	(2)2x
5(2)	1	-	-	-	-	-	0.494	0.760	0.965	(2)2x	(2)2x	0.521	0.000	4.462	(2)2x	(2)2x	1.359	0.000	8.771	(2)2x	(2)2x	2.946	0.000	13.829	(2)2x	(2)2x	5.218	0.000	19.571	(2)2x	(2)2x
6(1)	2	0.473	1.896	1.141	(3)2x	(2)2x	3.237	0.629	4.252	(3)2x	(2)2x	5.416	0.000	10.098	(3)2x	(2)2x	8.430	0.000	16.778	(3)2x	(2)2x	11.997	0.000	24.012	(3)2x	(2)2x	15.866	0.000	31.547	(3)2x	(2)2x
6(2)	2	-	-	-	-	-	0.641	0.677	3.050	(2)2x	(2)2x	1.800	0.778	5.852	(2)2x	(2)2x	3.836	0.264	9.531	(2)2x	(2)2x	6.454	0.000	13.791	(2)2x	(2)2x	9.390	0.000	18.369	(2)2x	(2)2x
6(3)	2	-	-	-	-	-	0.000	0.000	5.110	(2)2x	(2)2x	1.147	0.023	8.257	(2)2x	(2)2x	3.327	0.000	12.254	(2)2x	(2)2x	6.071	0.000	16.815	(2)2x	(2)2x	9.122	0.000	21.683	(2)2x	(2)2x
7(1)	CMU	N/A	N/A	N/A	CMU	CMU	N/A	N/A	N/A	CMU	CMU	N/A	N/A	N/A	CMU	CMU	N/A	N/A	N/A	CMU	CMU	N/A	N/A	N/A	CMU	CMU	N/A	N/A	N/A	CMU	CMU
7(2)	2	-	-	-	-	-	0.000	0.000	5.848	(2)2x	(2)2x	0.236	0.000	8.684	(2)2x	(2)2x	2.478	0.000	12.502	(2)2x	(2)2x	5.372	0.000	16.973	(2)2x	(2)2x	8.594	0.000	21.772	(2)2x	(2)2x
7(3)	2	-	-	-	-	-	0.000	0.000	5.873	(2)2x	(2)2x	1.243	0.000	8.274	(2)2x	(2)2x	4.106	0.166	11.682	(2)2x	(2)2x	7.637	0.176	15.759	(2)2x	(2)2x	11.504	0.000	20.170	(2)2x	(2)2x
8(1)	3	1.744	4.752	2.411	(3)2x	(2)2x	6.261	0.977	7.276	(3)2x	(2)2x	10.437	0.000	13.628	(3)2x	(2)2x	15.155	0.000	20.521	(3)2x	(2)2x	20.230	0.000	27.771	(3)2x	(2)2x	25.633	0.000	35.387	(3)2x	(3)2x
8(2)	2	0.000	0.000	2.957	(2)2x	(2)2x	0.333	0.000	5.519	(2)2x	(2)2x	1.605	0.000	8.368	(2)2x	(2)2x	3.409	0.000	11.749	(2)2x	(2)2x	5.565	0.000	15.481	(2)2x	(2)2x	7.897	0.000	19.390	(2)2x	(2)2x
8(3)	1	0.000	0.000	0.525	(2)2x	(2)2x	0.000	0.000	3.038	(2)2x	(2)2x	0.127	0.000	5.818	(2)2x	(2)2x	1.351	0.000	9.114	(2)2x	(2)2x	2.918	0.000	12.751	(2)2x	(2)2x	4.655	0.000	16.560	(2)2x	(2)2x
8(4)	2	0.000	0.000	0.558	(2)2x	(2)2x	0.824	0.481	3.172	(2)2x	(2)2x	2.416	0.210	6.094	(2)2x	(2)2x	4.555	0.000	9.565	(2)2x	(2)2x	7.059	0.000	13.399	(2)2x	(2)2x	9.743	0.000	17.415	(2)2x	(2)2x
9(1)	2	0.000	0.000	1.510	(4)2x	(2)2x	0.000	4.043	1.510	(4)2x	(2)2x	0.000	1.061	2.971	(4)2x	(2)2x	1.875	1.620	5.501	(4)2x	(2)2x	4.637	1.830	8.741	(4)2x	(2)2x	7.748	1.692	12.331	(4)2x	(2)2x
9(2)	2	1.961	1.059	2.832	(4)2x	(2)2x	-	-	-	-	-	4.704	1.349	6.053	(4)2x	(2)2x	8.516	1.908	10.344	(4)2x	(2)2x	13.038	2.118	15.343	(4)2x	(2)2x	17.910	1.980	20.694	(4)2x	(2)2x
9(3)	2	1.961	1.059	2.832	(4)2x	(2)2x	-	-	-	-	-	4.704	1.349	6.053	(4)2x	(2)2x	8.516	1.908	10.344	(4)2x	(2)2x	13.038	2.118	15.343	(4)2x	(2)2x	17.910	1.980	20.694	(4)2x	(2)2x
9(4)	2	1.961	1.059	2.832	(4)2x	(2)2x	-	-	-	-	-	4.704	1.349	6.053	(4)2x	(2)2x	8.516	1.908	10.344	(4)2x	(2)2x	13.038	2.118	15.343	(4)2x	(2)2x	17.910	1.980	20.694	(4)2x	(2)2x
A(1)	2	-	-	-	-	-	0.505	0.339	0.917	(4)2x	(2)2x	1.671	1.545	3.825	(4)2x	(2)2x	4.084	1.735	7.980	(4)2x	(2)2x	7.607	1.884	13.245	(4)2x	(2)2x	12.156	1.958	19.536	(4)2x	(2)2x
A(2)	3	0.441	0.336	3.665	(4)2x	(2)2x	2.622	0.013	9.410	(4)2x	(2)2x	5.755	0.089	14.528	(4)2x	(2)2x	9.732	0.171	20.489	(4)2x	(2)2x	14.619	0.212	27.362	(4)2x	(2)2x	21.072	0.186	35.860	(4)2x	(3)2x
B.2(1)	2	0.000	0.847	0.728	(2)2x	(2)2x	1.621	0.000	4.934	(2)2x	(2)2x	2.612	0.000	11.033	(2)2x	(2)2x	5.012	0.000	18.541	(2)2x	(2)2x	8.766	0.000	27.443	(2)2x	(3)2x	13.787	0.000	37.636	(2)2x	(4)2x
B.7(1)	2	0.000	0.806	0.651	(2)2x	(2)2x	1.980	0.951	2.979	(2)2x	(2)2x	3.834	0.000	8.957	(2)2x	(2)2x	6.787	0.000	16.033	(2)2x	(2)2x	10.469	0.000	23.838	(2)2x	(2)2x	14.711	0.000	32.256	(2)2x	(3)2x
C.3(1)	2	-	-	-	-	-	0.866	0.049	3.748	(2)2x	(2)2x	2.978	0.000	9.383	(2)2x	(2)2x	6.263	0.000	16.192	(2)2x	(2)2x	10.327	0.000	23.779	(2)2x	(2)2x	14.905	0.000	31.940	(2)2x	(3)2x
C.3(2)	3	0.614	2.110	11.410	(3)2x	(2)2x	4.006	1.821	15.022	(3)2x	(2)2x	8.057	0.276	22.488	(3)2x	(2)2x	13.490	0.000	31.370	(3)2x	(3)2x	19.880	0.000	41.239	(3)2x	(4)2x	26.827	0.000	51.696	(3)2x	(5)2x
C.6(1)	CMU	N/A	N/A	N/A	CMU	CMU	N/A	N/A	N/A	CMU	CMU	N/A	N/A	N/A	CMU	CMU	N/A	N/A	N/A	CMU	CMU	N/A	N/A	N/A	CMU	CMU	N/A	N/A	N/A	CMU	CMU
C.6(2)	3	0.000	0.436	7.260	(3)2x	(2)2x	2.374	0.401	10.643	(3)2x	(2)2x	5.502	0.000	17.829	(3)2x	(2)2x	9.891	0.000	26.275	(3)2x	(2)2x	15.209	0.000	35.700	(3)2x	(3)2x	21.008	0.000	45.629	(3)2x	(4)2x
E(1)	1	-	-	-	-	-	0.000	0.000	5.772	(2)2x	(2)2x	0.000	0.000	6.760	(2)2x	(2)2x	0.000	0.000	8.119	(2)2x	(2)2x	0.000	0.000	9.726	(2)2x	(2)2x	0.000	0.000	11.453	(2)2x	(2)2x
E(2)	1	-	-	-	-	-	0.000	0.000	5.777	(2)2x	(2)2x	0.000	0.000	7.266	(2)2x	(2)2x	0.000	0.000	9.131	(2)2x	(2)2x	0.000	0.000	11.245	(2)2x	(2)2x	0.000	0.000	13.481	(2)2x	(2)2x
E(3)	1	-	-	-	-	-	0.000	0.000	5.792	(2)2x	(2)2x	0.000	0.000	7.313	(2)2x	(2)2x	0.000	0.000	9.222	(2)2x	(2)2x	0.000	0.000	11.387	(2)2x	(2)2x	0.832	0.000	13.678	(2)2x	(2)2x
F(1)	2	0.270	0.071	1.008	(2)2x	(2)2x	2.568	0.956	4.710	(2)2x	(2)2x	5.678	1.070	9.069	(2)2x	(2)2x	9.603	0.989	14.244	(2)2x	(2)2x	14.068	0.681	19.959	(2)2x	(2)2x	18.798	0.143	25.938	(2)2x	(2)2x
F(2)	1	0.000	0.000	0.909	(2)2x	(2)2x	0.000	0.000	4.335	(2)2x	(2)2x	0.000	0.000	8.314	(2)2x	(2)2x	0.596	0.000	13.027	(2)2x	(2)2x	2.402	0.000	18.228	(2)2x	(2)2x	4.446	0.000	23.667	(2)2x	(2)2x
G(1)	2	2.483	1.365	3.510	(4)2x	(2)2x	-	-	-	-	-	5.302	1.691	6.894	(4)2x	(2)2x	9.001	1.980	11.157	(4)2x	(2)2x	13.283	1.982	16.004	(4)2x	(2)2x	17.851	1.695	21.136	(4)2x	(2)2x
G(2)	2	2.483	1.365	3.510	(4)2x	(2)2x	-	-	-	-	-	5.302	1.691	6.894	(4)2x	(2)2x	9.001	1.980	11.157	(4)2x	(2)2x	13.283	1.982	16.004	(4)2x	(2)2x	17.851	1.695	21.136	(4)2x	(2)2x
G(3)	2	2.848	1.663	3.719	(4)2x	(2)2x	-	-	-	-	-	5.954	2.128	7.304	(4)2x	(2)2x	9.993	2.555	11.820	(4)2x	(2)2x	14.649	2.676	16.955	(4)2x	(2)2x	19.609	2.491	22.393	(4)2x	(2)2x
G(4)	2	2.634	1.539	3.440	(2)2x	(2)2x	-	-	-	-	-	5.954	2.084	7.447	(4)2x	(2)2x	9.993	2.555	11.964	(4)2x	(2)2x	14.649	2.676	17.099	(4)2x	(2)2x	19.609	2.491	22.536	(4)2x	(2)2x
G(5)	2	1.989	0.935	3.308	(2)2x	(2)2x	-	-	-	-	-	4.100	0.143	8.300	(2)2x	(2)2x	7.040	0.000	14.121	(2)2x	(2)2x	10.633	0.000	20.639	(2)2x	(3)2x	14.570	0.000	27.523	(2)2x	(4)2x

KL&A Engineers & Builders

Title	Basecamp Phase II	Date	3 5 26	Job No.	25336
Subject	Anchor-Rod Summary B	By	APS	Sheet	

Rod Assembly Run	High Roof					Main Roof					Level 5					Level 4					Level 3					Level 2				
	RTUD	BPRTUD Plate	Assembly Bearing Capacity [lbs]	Tension Rod	Tension Rod Capacity [lbs]	RTUD	BPRTUD Plate	Assembly Bearing Capacity [lbs]	Tension Rod	Tension Rod Capacity [lbs]	ATUD	Bearing Plate	Assembly Bearing Capacity [lbs]	Tension Rod	Tension Rod Capacity [lbs]	ATUD	Bearing Plate	Assembly Bearing Capacity [lbs]	Tension Rod	Tension Rod Capacity [lbs]	ATUD	Bearing Plate	Assembly Bearing Capacity [lbs]	Tension Rod	Tension Rod Capacity [lbs]	ATUD	Bearing Plate	Assembly Bearing Capacity [lbs]	Tension Rod	Tension Rod Capacity [lbs]
3	RTUD4B	BPRTUD3-4B	6415	ATR1/2	4270	RTUD5	BPRTUD5-6B	10295	ATR5/8	6675	ATUD6-2	PL6-3x5.5	10275	ATS-SR5H	13805	ATUD6-2	PL6-3x5.5	10275	ATS-HSR6	19880	ATUD9-2	PL9-5x5.5	12790	ATS-SR7H	27060	ATUD9	PL9-5x5.5	15560	ATS-SR7H	27060
2	RTUD4B	BPRTUD3-4B	6415	ATR1/2	4270	RTUD4B	BPRTUD3-4B	6415	ATR1/2	4270	ATUD6-2	PL6-3x3.5	6720	ATR5/8	6675	ATUD6-2	PL6-3x5.5	10275	ATS-SR5H	13805	ATUD6-2	PL6-3x5.5	10275	ATS-SR6H	19880	ATUD9	PL9-5x5.5	15560	ATS-SR6H	19880
1	RTUD3B	BPRTUD3-4B	5180	ATR3/8	2400	RTUD3B	BPRTUD3-4B	5180	ATR3/8	2400	ATUD6-2	PL6-3x3.5	6720	ATR1/2	4270	ATUD6-2	PL6-3x3.5	6720	ATR5/8	6675	ATUD6-2	PL6-3x3.5	6720	ATR5/8	6675	ATUD6-2	PL6-3x3.5	6720	ATR5/8	6675
	2.848	4.752	11.410			6.261	3.886	15.022			10.437	2.128	22.488			15.155	2.555	31.370			20.230	2.676	41.239			26.827	2.491	51.696		

Pier Stack Number	Run	Boundary B																												
		HR					MR					L5					L4					L3					L2				
		Rod Tension [kips]	TUD Bearing [kips]	Post Comp [kips]	Exterior Boundary Stud	Interior Boundary Stud	Rod Tension [kips]	TUD Bearing [kips]	Post Comp [kips]	Exterior Boundary Stud	Interior Boundary Stud	Rod Tension [kips]	TUD Bearing [kips]	Post Comp [kips]	Exterior Boundary Stud	Interior Boundary Stud	Rod Tension [kips]	TUD Bearing [kips]	Post Comp [kips]	Exterior Boundary Stud	Interior Boundary Stud	Rod Tension [kips]	TUD Bearing [kips]	Post Comp [kips]	Exterior Boundary Stud	Interior Boundary Stud	Rod Tension [kips]	TUD Bearing [kips]	Post Comp [kips]	Exterior Boundary Stud	Interior Boundary Stud
1(1)	1	0.000	0.000	1.549	(3)2x	(2)2x	0.000	0.000	3.205	(3)2x	(2)2x	0.000	0.000	5.561	(3)2x	(2)2x	0.432	0.000	8.182	(3)2x	(2)2x	1.139	0.000	10.979	(3)2x	(2)2x	1.933	0.000	13.862	(3)2x	(2)2x
1(2)	1	-	-	-	-	-	0.000	0.000	1.005	(2)2x	(2)2x	0.000	0.000	2.596	(2)2x	(2)2x	0.000	0.000	4.524	(2)2x	(2)2x	0.000	0.000	6.764	(2)2x	(2)2x	0.000	0.000	9.288	(2)2x	(2)2x
2(1)	3	0.615	2.037	4.516	(3)2x	(2)2x	4.326	0.980	8.485	(3)2x	(2)2x	8.184	0.380	14.831	(3)2x	(2)2x	13.105	0.000	23.222	(3)2x	(2)2x	18.891	0.000	32.528	(3)2x	(3)2x	26.359	0.000	43.544	(3)2x	(4)2x
2(2)	2	-	-	-	-	-	0.947	1.555	1.418	(2)2x	(2)2x	2.124	0.513	5.925	(2)2x	(2)2x	4.618	0.000	11.750	(2)2x	(2)2x	8.327	0.000	18.790	(2)2x	(2)2x	13.147	0.000	26.940	(2)2x	(2)2x
4(1)	2	0.436	1.812	1.103	(3)2x	(2)2x	3.254	0.876	4.270	(3)2x	(2)2x	5.274	0.000	10.619	(3)2x	(2)2x	8.217	0.000	17.893	(3)2x	(2)2x	11.982	0.000	25.987	(3)2x	(2)2x	17.270	0.000	35.667	(3)2x	(3)2x
4(2)	2	-	-	-	-	-	0.912	1.423	1.382	(2)2x	(2)2x	1.921	0.280	5.723	(2)2x	(2)2x	4.129	0.000	11.261	(2)2x	(2)2x	7.442	0.000	17.905	(2)2x	(2)2x	11.766	0.000	25.559	(2)2x	(2)2x
5(1)	2	0.026	0.876	0.682	(2)2x	(2)2x	1.633	0.210	2.631	(2)2x	(2)2x	2.238	0.000	7.361	(2)2x	(2)2x	3.520	0.000	12.768	(2)2x	(2)2x	5.673	0.000	19.046	(2)2x	(2)2x	8.498	0.000	25.995	(2)2x	(2)2x
5(2)	1	-	-	-	-	-	0.494	0.760	0.965	(2)2x	(2)2x	0.521	0.000	4.462	(2)2x	(2)2x	1.359	0.000	8.771	(2)2x	(2)2x	2.946	0.000	13.829	(2)2x	(2)2x	5.218	0.000	19.571	(2)2x	(2)2x
6(1)	2	0.473	1.896	1.141	(3)2x	(2)2x	3.237	0.629	4.252	(3)2x	(2)2x	5.416	0.000	10.098	(3)2x	(2)2x	8.430	0.000	16.778	(3)2x	(2)2x	11.997	0.000	24.012	(3)2x	(2)2x	15.866	0.000	31.547	(3)2x	(2)2x
6(2)	2	-	-	-	-	-	0.641	0.677	3.050	(2)2x	(2)2x	1.800	0.778	5.852	(2)2x	(2)2x	3.836	0.264	9.531	(2)2x	(2)2x	6.454	0.000	13.791	(2)2x	(2)2x	9.390	0.000	18.369	(2)2x	(2)2x
6(3)	2	-	-	-	-	-	0.000	0.000	5.110	(2)2x	(2)2x	1.147	0.023	8.257	(2)2x	(2)2x	3.327	0.000	12.254	(2)2x	(2)2x	6.071	0.000	16.815	(2)2x	(2)2x	9.122	0.000	21.683	(2)2x	(2)2x
7(1)	CMU	N/A	N/A	N/A	CMU	CMU	N/A	N/A	N/A	CMU	CMU	N/A	N/A	N/A	CMU	CMU	N/A	N/A	N/A	CMU	CMU	N/A	N/A	N/A	CMU	CMU	N/A	N/A	N/A	CMU	CMU
7(2)	2	-	-	-	-	-	0.000	0.000	5.848	(2)2x	(2)2x	0.236	0.000	8.684	(2)2x	(2)2x	2.478	0.000	12.502	(2)2x	(2)2x	5.372	0.000	16.973	(2)2x	(2)2x	8.594	0.000	21.772	(2)2x	(2)2x
7(3)	2	-	-	-	-	-	0.000	0.000	5.873	(2)2x	(2)2x	1.243	0.000	8.274	(2)2x	(2)2x	4.106	0.166	11.682	(2)2x	(2)2x	7.637	0.176	15.759	(2)2x	(2)2x	11.504	0.000	20.170	(2)2x	(2)2x
8(1)	3	1.744	4.752	2.411	(3)2x	(2)2x	6.261	0.977	7.276	(3)2x	(2)2x	10.437	0.000	13.628	(3)2x	(2)2x	15.155	0.000	20.521	(3)2x	(2)2x	20.230	0.000	27.771	(3)2x	(2)2x	25.633	0.000	35.387	(3)2x	(3)2x
8(2)	2	0.000	0.000	2.957	(2)2x	(2)2x	0.333	0.000	5.519	(2)2x	(2)2x	1.605	0.000	8.368	(2)2x	(2)2x	3.409	0.000	11.749	(2)2x	(2)2x	5.565	0.000	15.481	(2)2x	(2)2x	7.897	0.000	19.390	(2)2x	(2)2x
8(3)	1	0.000	0.000	0.525	(2)2x	(2)2x	0.000	0.000	3.038	(2)2x	(2)2x	0.127	0.000	5.818	(2)2x	(2)2x	1.351	0.000	9.114	(2)2x	(2)2x	2.918	0.000	12.751	(2)2x	(2)2x	4.655	0.000	16.560	(2)2x	(2)2x
8(4)	2	0.000	0.000	0.558	(2)2x	(2)2x	0.824	0.481	3.172	(2)2x	(2)2x	2.416	0.210	6.094	(2)2x	(2)2x	4.555	0.000	9.565	(2)2x	(2)2x	7.059	0.000	13.399	(2)2x	(2)2x	9.743	0.000	17.415	(2)2x	(2)2x
9(1)	2	0.000	0.000	1.510	(3)2x	(2)2x	0.000	3.886	1.510	(3)2x	(2)2x	0.000	1.019	2.914	(3)2x	(2)2x	1.802	1.557	5.345	(3)2x	(2)2x	4.456	1.759	8.459	(3)2x	(2)2x	7.447	1.626	11.909	(3)2x	(2)2x
9(2)	2	1.961	1.059	2.832	(4)2x	(2)2x	-	-	-	-	-	4.704	1.349	6.053	(4)2x	(2)2x	8.516	1.908	10.344	(4)2x	(2)2x	13.038	2.118	15.343	(4)2x	(2)2x	17.910	1.980	20.694	(4)2x	(2)2x
9(3)	2	1.961	1.059	2.832	(4)2x	(2)2x	-	-	-	-	-	4.704	1.349	6.053	(4)2x	(2)2x	8.516	1.908	10.344	(4)2x	(2)2x	13.038	2.118	15.343	(4)2x	(2)2x	17.910	1.980	20.694	(4)2x	(2)2x
9(4)	2	1.961	1.059	2.832	(4)2x	(2)2x	-	-	-	-	-	4.704	1.349	6.053	(4)2x	(2)2x	8.516	1.908	10.344	(4)2x	(2)2x	13.038	2.118	15.343	(4)2x	(2)2x	17.910	1.980	20.694	(4)2x	(2)2x
A(1)	2	-	-	-	-	-	0.505	0.339	0.917	(4)2x	(2)2x	1.671	1.545	3.825	(4)2x	(2)2x	4.084	1.735	7.980	(4)2x	(2)2x	7.607	1.884	13.245	(4)2x	(2)2x	12.156	1.958	19.536	(4)2x	(2)2x
A(2)	3	0.441	0.336	3.665	(4)2x	(2)2x	2.622	0.013	9.410	(4)2x	(2)2x	5.755	0.089	14.528	(4)2x	(2)2x	9.732	0.171	20.489	(4)2x	(2)2x	14.619	0.212	27.362	(4)2x	(2)2x	21.072	0.186	35.860	(4)2x	(3)2x
B.2(1)	2	0.000	0.847	0.728	(2)2x	(2)2x	1.621	0.000	4.934	(2)2x	(2)2x	2.612	0.000	11.033	(2)2x	(2)2x	5.012	0.000	18.541	(2)2x	(2)2x	8.766	0.000	27.443	(2)2x	(3)2x	13.787	0.000	37.636	(2)2x	(4)2x
B.7(1)	2	0.000	0.806	0.651	(2)2x	(2)2x	1.980	0.951	2.979	(2)2x	(2)2x	3.834	0.000	8.957	(2)2x	(2)2x	6.787	0.000	16.033	(2)2x	(2)2x	10.469	0.000	23.838	(2)2x	(2)2x	14.711	0.000	32.256	(2)2x	(3)2x
C.3(1)	2	-	-	-	-	-	0.866	0.049	3.748	(2)2x	(2)2x	2.978	0.000	9.383	(2)2x	(2)2x	6.263	0.000	16.192	(2)2x	(2)2x	10.327	0.000	23.779	(2)2x	(2)2x	14.905	0.000	31.940	(2)2x	(3)2x
C.3(2)	3	0.614	2.110	11.410	(3)2x	(2)2x	4.006	1.821	15.022	(3)2x	(2)2x	8.057	0.276	22.488	(3)2x	(2)2x	13.490	0.000	31.370	(3)2x	(3)2x	19.880	0.000	41.239	(3)2x	(4)2x	26.827	0.000	51.696	(3)2x	(5)2x
C.6(1)	CMU	N/A	N/A	N/A	CMU	CMU	N/A	N/A	N/A	CMU	CMU	N/A	N/A	N/A	CMU	CMU	N/A	N/A	N/A	CMU	CMU	N/A	N/A	N/A	CMU	CMU	N/A	N/A	N/A	CMU	CMU
C.6(2)	3	0.000	0.436	7.260	(3)2x	(2)2x	2.374	0.401	10.643	(3)2x	(2)2x	5.502	0.000	17.829	(3)2x	(2)2x	9.891	0.000	26.275	(3)2x	(2)2x	15.209	0.000	35.700	(3)2x	(3)2x	21.008	0.000	45.629	(3)2x	(4)2x
E(1)	1	-	-	-	-	-	0.000	0.000	5.772	(2)2x	(2)2x	0.000	0.000	6.760	(2)2x	(2)2x	0.000	0.000	8.119	(2)2x	(2)2x	0.000	0.000	9.726	(2)2x	(2)2x	0.000	0.000	11.453	(2)2x	(2)2x
E(2)	1	-	-	-	-	-	0.000	0.000	5.777	(2)2x	(2)2x	0.000	0.000	7.266	(2)2x	(2)2x	0.000	0.000	9.131	(2)2x	(2)2x	0.000	0.000	11.245	(2)2x	(2)2x	0.000	0.000	13.481	(2)2x	(2)2x
E(3)	1	-	-	-	-	-	0.000	0.000	5.792	(2)2x	(2)2x	0.000	0.000	7.313	(2)2x	(2)2x	0.000	0.000	9.222	(2)2x	(2)2x	0.000	0.000	11.387	(2)2x	(2)2x	0.832	0.000	13.678	(2)2x	(2)2x
F(1)	2	0.270	0.071	1.008	(2)2x	(2)2x	2.568	0.956	4.710	(2)2x	(2)2x	5.678	1.070	9.069	(2)2x	(2)2x	9.603	0.989	14.244	(2)2x	(2)2x	14.068	0.681	19.959	(2)2x	(2)2x	18.798	0.143	25.938	(2)2x	(2)2x
F(2)	1	0.000	0.000	0.909	(2)2x	(2)2x	0.000	0.000	4.335	(2)2x	(2)2x	0.000	0.000	8.314	(2)2x	(2)2x	0.596	0.000	13.027	(2)2x	(2)2x	2.402	0.000	18.228	(2)2x	(2)2x	4.446	0.000	23.667	(2)2x	(2)2x
G(1)	2	2.483	1.365	3.510	(4)2x	(2)2x	-	-	-	-	-	5.302	1.691	6.894	(4)2x	(2)2x	9.001	1.980	11.157	(4)2x	(2)2x	13.283	1.982	16.004	(4)2x	(2)2x	17.851	1.695	21.136	(4)2x	(2)2x
G(2)	2	2.483	1.365	3.510	(4)2x	(2)2x	-	-	-	-	-	5.302	1.691	6.894	(4)2x	(2)2x	9.001	1.980	11.157	(4)2x	(2)2x	13.283	1.982	16.004	(4)2x	(2)2x	17.851	1.695	21.136	(4)2x	(2)2x
G(3)	2	2.848	1.663	3.719	(4)2x	(2)2x	-	-	-	-	-	5.954	2.128	7.304	(4)2x	(2)2x	9.993	2.555	11.820	(4)2x	(2)2x	14.649	2.676	16.955	(4)2x	(2)2x	19.609	2.491	22.393	(4)2x	(2)2x
G(4)	2	2.848	1.663	3.719	(4)2x	(2)2x	-	-	-	-	-	5.954	2.084	7.447	(4)2x	(2)2x	9.993	2.555	11.964	(4)2x	(2)2x	14.649	2.676	17.099	(4)2x	(2)2x	19.609	2.491	22.536	(4)2x	(2)2x
G(5)	2	2.111	0.993	3.510	(4)2x	(2)2x	-	-	-	-	-	4.351	0.186	8.698	(4)2x	(2)2x	7.472	0.000	14.765	(4)2x	(2)2x	11.175	0.000	21.416	(4)2x	(2)2x	15.165	0.000	28.352	(4)2x	(2)2x

KL&A Engineers & Builders

Basecamp Phase II | Date 3 5 26 | Job No. 25336

:t CMU Core Loading | By APS | Sheet

Flat Load Cases	Type	Dead [psf]	Live [psf]	Roof Live [psf]	Snow [psf]
1	Floor	42	40	0	0
2	Balcony	46	60	0	0
3	Roof	27	0	20	104
4	Exit Ways	41	100	0	0
5	Loft	30	40	0	0
6	0	0	0	0	0

Wall Load Cases	Type	Dead [psf]
1	Int 2x Brg	10
2	Ext 2x Brng	16
3	CMU Core	78
4	0	0
5	0	0
6	0	0

Shear Wall Mark	Wall Pier Length	Story Height	Flat Loads										Wall Loads			Axial Load (Unfactored)				Shear Demand (Unfactored)				$M_{overturn}$ (Unfactored)	
			Flat Load Case	Trib to Wall	Dead Load		Live Load		Roof Live		Snow Load		Wall Load Case	Wall DL		DL	LL	RLL	SL	Wind		Seismic		Wind	Seismic
					Area	Line	Area	Line	Area	Line	Area	Line		Area Load	Line Load					Level	Cumulative	Level	Cumulative		
	[ft]	[ft]		[ft]	[psf]	[plf]	[psf]	[plf]	[psf]	[plf]	[psf]	[plf]		[psf]	[plf]	[kips]	[kips]	[kips]	[kips]	[kips]	[kips]	[kips]	[kips]	[kip-ft]	[kip-ft]
7(1)_HR	8.83	4.73	3	4	27	108	0	0	20	80	104	416	3	78	369	4.21	0.00	0.71	3.67	0.560	0.560	0.401	0.401	2.09	1.50
7(1)_MR	8.83	8.72	3	3	27	81	0	0	20	60	104	312	3	78	680	6.72	0.00	0.53	2.76	0.653	0.816	1.288	1.405	9.84	12.28
7(1)_L5	8.83	8.72	1	4	42	147	40	140	0	0	0	0	3	78	680	7.31	1.24	0.00	0.00	0.945	1.761	1.727	3.132	23.43	33.78
7(1)_L4	8.83	8.72	1	4	42	147	40	140	0	0	0	0	3	78	680	7.31	1.24	0.00	0.00	0.846	2.607	1.265	4.397	42.33	63.25
7(1)_L3	8.83	8.72	1	4	42	147	40	140	0	0	0	0	3	78	680	7.31	1.24	0.00	0.00	0.781	3.388	0.839	5.236	66.15	97.99
7(1)_L2	8.83	8.72	1	4	42	147	40	140	0	0	0	0	3	78	680	7.31	1.24	0.00	0.00	0.713	4.101	0.421	5.657	94.46	135.38
C.6(1)_HR	9.83	4.73	3	1	27	27	0	0	20	20	104	104	3	78	369	3.89	0.00	0.20	1.02	0.520	0.520	0.401	0.401	1.94	1.50
C.6(1)_MR	9.83	8.72	3	1	27	27	0	0	20	20	104	104	3	78	680	6.95	0.00	0.20	1.02	0.822	2.143	2.560	3.871	10.52	20.41
C.6(1)_L5	9.83	8.72	1	0	42	0	40	0	0	0	0	0	3	78	680	6.69	0.00	0.00	0.00	1.325	3.468	2.408	6.279	27.30	54.21
C.6(1)_L4	9.83	8.72	1	0	42	0	40	0	0	0	0	0	3	78	680	6.69	0.00	0.00	0.00	1.174	4.642	1.764	8.043	51.48	99.10
C.6(1)_L3	9.83	8.72	1	0	42	0	40	0	0	0	0	0	3	78	680	6.69	0.00	0.00	0.00	1.097	5.739	1.169	9.212	82.56	151.35
C.6(1)_L2	9.83	8.72	1	0	42	0	40	0	0	0	0	0	3	78	680	6.69	0.00	0.00	0.00	1.021	6.760	0.573	9.785	120.06	207.21
															Sum of Vertical Loads =	77.75	4.95	1.63	8.48						

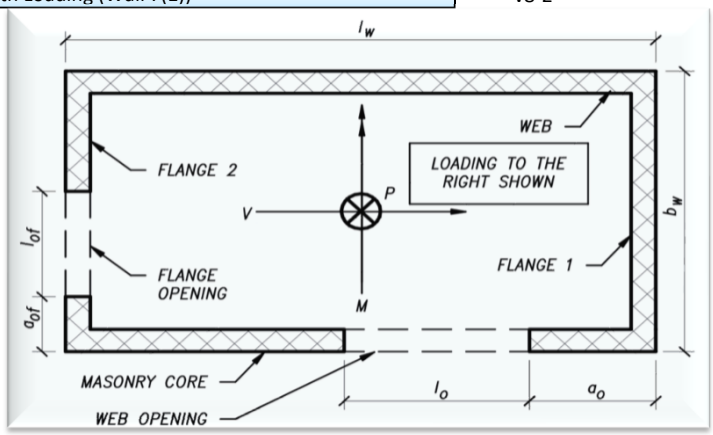
REINFORCED MASONRY IN-PLANE ANALYSIS

Governing code: TMS 402/602-16 - Strength Design (T), ASCE7-16 (A)

Description CMU Elevator Core - North-South Loading (Wall 7(1)) v8-2

DESIGN LOADS

	Axial	Moment	Shear
D	78k	k-ft	k
L	5k	k-ft	k
S	9k	k-ft	k
W	k	95k-ft	5k
Q_E	k	136k-ft	6k
S_{DS}		=	0.2



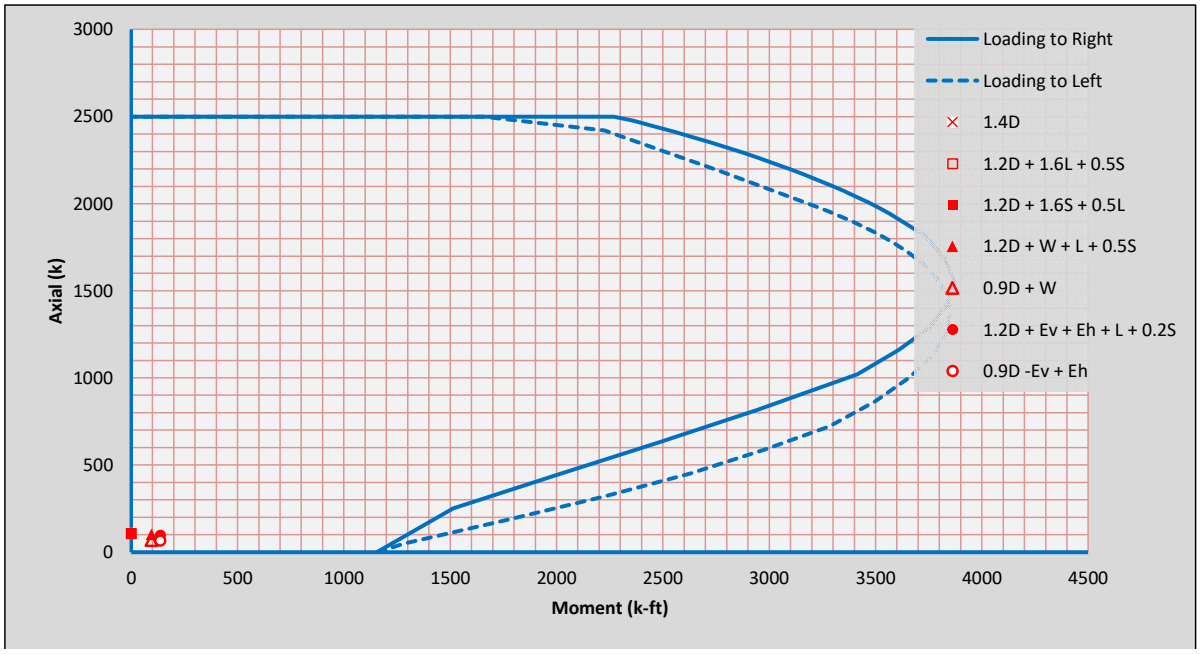
GENERAL

Number of Webs, N_{web}	=	2
Number of Flanges, N_{flg}	=	1
Section Type	=	*Core*
Shear Wall Type	=	Intermediate
Masonry Units	=	8in CMU
Bond Pattern	=	Running
Masonry Strength, f'_m	=	2000 psi
Flr to Flr height, h_w	=	10.5 ft
Total wall height, h	=	58.3 ft
Horizontal Bars	=	#5H
Horizontal spacing, s_h	=	@ 48 in
All Reinforcement, f_y	=	60 ksi

WEB(S) (Length not increment of cell spacing)

Length, l_w	=	106 in
Opening Length, l_O	=	in
Opening Location, a_O	=	in
Opening in Both Webs	=	No
Vertical Bars	=	#5V
Vertical Bar Spacing, s	=	24 in
No. bar layers, N_w	=	5

FLANGE(S)		Flange 1	Flange 2	
Actual Width, b_w	=	117 in	in	
Opening Length, l_{of}	=	in		
Opening Location, a_{of}	=	in	in	
Vertical Bars	=	#5V	#5V	
Reinf Spacing, s_f	=	24 in	24 in	
Compression Flange				
Code (6t)	=	96 in	96 in	T 5.1.1.2.3a
Design Width, b	=	96 in	in	
No. bar rows	=	4	2	
Tension Flange				
Code (0.75*h_w)	=	189 in	189	T 5.1.1.2.3c
Design Width, b_t	=	117 in	0	
No. bar rows	=	4	2	



LIMIT STATE SUMMARY (LOADING TO RIGHT)		$R_u/\phi R_n$		Limit	
MAXIMUM REINFORCING	✓	0.06	≤	100.0	*
BENDING/COMPRESSION	✓	0.11	≤	1.0	
SHEAR	✓	0.04	≤	1.0	
BOUNDARY ELEMENTS	✓	Not Required			

**Maximum Reinforcing Limits Relaxed by Satisfying Section T 9.3.6.5*

LIMIT STATE SUMMARY (LOADING TO LEFT)		$R_u/\phi R_n$		Limit	
MAXIMUM REINFORCING	✓	0.77	≤	100.0	**
BENDING/COMPRESSION	✓	0.10	≤	1.0	
SHEAR	✓	0.04	≤	1.0	
BOUNDARY ELEMENTS	✓	Not Required			

***Maximum Reinforcing Limits Relaxed by Satisfying Section T 9.3.6.5*

MINIMUM REINFORCING CHECKS

		Unity		Limit	
MIN TOTAL REINF WEB(S)	✓	0.00	≤	1.0	*Reinf Ratio*
MIN VERT REINF WEB(S)	✓	0.65	≤	1.0	*Min bar size*
MIN HORIZ REINF WEB(S)	✓	0.65	≤	1.0	*Min bar size*

		Unity		Limit	
MIN TOTAL REINF FLANGE 1	✓	0.00	≤	1.0	*Reinf Ratio*
MIN VERT REINF FLANGE 1	✓	0.65	≤	1.0	*Min bar size*
MIN HORIZ REINF FLANGE 1	✓	0.65	≤	1.0	*Min bar size*
MIN TOTAL REINF FLANGE 2		0.00	≤	1.0	*Reinf Ratio*
MIN VERT REINF FLANGE 2		0.65	≤	1.0	*Min bar size*
MIN HORIZ REINF FLANGE 2		0.65	≤	1.0	*Min bar size*

RESISTANCE FACTORS RE: T 9.1.4

Shear Resistance factor, ϕ_v	=	0.8	9.1.4.5
Bending Resistance factor, ϕ_b	=	0.9	9.1.4.4
Axial Resistance Factor, ϕ_c	=	0.9	9.1.4.4

LOAD COMBINATIONS

				P_u kip	M_u k-ft	V_u kip	
Seismic Effects							A 12.4-3
Horizontal Effect, E_h	=	Q_E	=	0	136	6	A Eqn 12.4-4a
Vertical Effect, E_v	=	$0.2S_{DS}D$	=	3	0	0	
Combinations							
Combination 1:	=	1.4D	=	109	0	0	A 2.3.1
Combination 2:	=	1.2D + 1.6L + 0.5S	=	106	0	0	A 2.3.1
Combination 3:	=	1.2D + 1.6S + 0.5L	=	111	0	0	A 2.3.1
Combination 4:	=	1.2D + 1.0W + L + .5S	=	103	95	5	A 2.3.1
Combination 5:	=	0.9D + 1.0W	=	70	95	5	A 2.3.1
Combination 6:	=	$1.2D + E_v + E_h + L + 0.2S$	=	99	136	6	A 2.3.6
Combination 7:	=	$0.9D - E_v + E_h$	=	67	136	6	A 2.3.6
Combination 8:	=	$1.0D + 0.75L + 0.525Q_E$	=	82	71	3	T 9.3.3.2.1

PURE COMPRESSION CAPACITY RE: T 9.3.4.1.1

Compression Resistance Factor, ϕ_c		=	0.9		T 9.1.4.4
Wall Thickness, t		=	7.6	in	
Web Thickness, t_w	= N_{web}*t	=	15.3	in	
Web Vertical Bar Area, $A_{s,web}$		=	0.31	in^2	
Flange Vertical Bar Area, $A_{s,fl}$		=	0.31	in^2	
Total Vertical Steel, A_{st}	= N_w*$A_{s,web}$ + (N_{f1}+N_{f2})$A_{s,fl}$	=	1.55	in^2	
Bottom Flange Width, b_1		=	96	in	
Top Flange Width, b_2		=	0	in	
Gross Area, A	= l_w*t_w +(b_1-tw)*t +(b2-tw)*t	=	2116	in^2	
Web Openings Area, A_{ow}	= 1 *(l_o*t)	=	0	in^2	
Flange Openings Area, A_{of}	= l_{of1}*t + l_{of2}*t	=	0	in^2	
Total Openings Area, A_o	= A_{ow} + A_{of}	=	0	in^2	
Masonry Gross Area, A_g	= A-A_o	=	2116	in^2	
Net Area, A_n	= A_g-A_{st}	=	2114	in^2	
Y-Axis Moment of Inertia (bending in-plane of web)					
Gross Moment of Inertia, I_{cy}		=	2.3E+06	in^4	
Net Moment of Inertia, I_y		=	2.3E+06	in^4	
X-Axis Moment of Inertia (bending in-plane of flange)					
Gross Moment of Inertia, I_{cx}		=	5.2E+06	in^4	
Net Moment of Inertia, I_x		=	5.2E+06	in^4	
Moment of Inertia, I	= min(I_x, I_y)	=	2.3E+06	in^4	
Radius of Gyration, r	= $\sqrt{I/A_g}$	=	32.7	in	
Effective Height, h	= h_w*1.2	=	12.6	ft	
Slenderness Criterion, λ_{crit}	= h/r	=	4.6		
Slenderness Penalty, λ	= 1-(h/140r)^2	=	1.00		
Compression Capacity, ϕP_n	= ϕ_c*0.8*[0.8*f'$_m$(A_n-A_{st})+f_y*A_{st}]*λ	=	**2498 k**		T Eqn 9-19

MAXIMUM STEEL (LOADING TO RIGHT) RE: 9.3.3.5

Max steel in reinforced masonry is defined by limiting the strain in the steel by the factor alpha (α) multiplied times the yield strain of the reinforcing. This is checked in this spreadsheet by determining the actual multiplication factor of the steel strain compared to yield strain. A unity ratio is reported as the limiting alpha verses the actual alpha.

Required Tensile Strain Factor, α_{limit}		=	3		T 9.3.3.5.2
Ultimate masonry strain, ε_{mu}		=	0.0025		T 3.3.2
Yield strain in steel, ε_y	= f_y/E_s	=	0.00207		
Axial load, N_u (Combination 8)		=	81.5	k	
N_u/ϕ		=	91	k	
Neutral axis, c		=	2.4	in	
Resultant Steel Force, T_s		=	202	k	
Resultant Masonry Force, C_m		=	295	k	
Axial load, N	= $C_m - T_s$	=	93	k	
Extreme steel lever, d		=	95	in	
Actual Tensile Strain Factor, α	= $(d*\varepsilon_{mu}/c - \varepsilon_{mu})/\varepsilon_y$	=	46.4		

**Maximum Reinforcing Limits Relaxed by Satisfying Section T 9.3.6.5*

α_{limit}/α = 0.06 < 100.0 OK

MAXIMUM STEEL (LOADING TO LEFT) RE: 9.3.3.5

Max steel in reinforced masonry is defined by limiting the strain in the steel by the factor alpha (α) multiplied times the yield strain of the reinforcing. This is checked in this spreadsheet by determining the actual multiplication factor of the steel strain compared to yield strain. A unity ratio is reported as the limiting alpha verses the actual alpha.

Required Tensile Strain Factor, α_{limit}		=	3.0		T 9.3.3.5.2
Ultimate masonry strain, ε_{mu}		=	0.0025		T 3.3.2
Yield strain in steel, ε_y	= f_y/E_s	=	0.00207		
Axial load, N_u (Combination 8)		=	81.5	k	
N_u/ϕ		=	91	k	
Neutral axis, c		=	22.4	in	
Resultant Steel Force, T_s		=	161	k	
Resultant Masonry Force, C_m		=	252	k	
Axial load, N	= $C_m - T_s$	=	91	k	
Extreme steel lever, d		=	95	in	
Actual Tensile Strain Factor, α	= $(d*\varepsilon_{mu}/c - \varepsilon_{mu})/\varepsilon_y$	=	3.9		

***Maximum Reinforcing Limits Relaxed by Satisfying Section T 9.3.6.5*

α_{limit}/α = 0.77 < 100.0 OK

BENDING/COMPRESSION (LOADING TO RIGHT) RE: 9.3.2

Only controlling combination is presented here. More information available upon request

Controlling Combination			=	Combo 7			
Ultimate Axial Load, P_u			=	67	k		
Ultimate Bending Moment, M_u			=	136	k-ft		
Ultimate Shear Load, V_u			=	6	k		
Axial and Bending Capacity							
Location of Neutral Axis, c			=	2.3	in		
Resultant Steel Force, T_s			=	207.9	k		
Resultant Masonry Force, C_m			=	282.6	k		
Steel Lever Arm, d_{st}			=	32.8	in		
Masonry Lever Arm, d_m			=	35.1	in		
Design Axial Capacity, ϕP_n	=	$\phi_c(C_m-T_s)$	=	67	k		
Design Moment Capacity, ϕM_n	=	$\phi_b(C_m*d_m+T_s*d_s)$	=	1255	k-ft		
Nom Moment Capacity, M_n	=	M_n/ϕ_b	=	1395	k-ft		
Combined Axial and Bending			**$R_u/\phi R_n$**	=	0.11	<	1.0 OK

BENDING/COMPRESSION (LOADING TO LEFT) RE: 9.3.2

Only controlling combination is presented here. More information available upon request

Controlling Combination			=	Combo 7			
Ultimate Axial Load, P_u			=	67	k		
Ultimate Bending Moment, M_u			=	136	k-ft		
Ultimate Shear Load, V_u			=	6	k		
Axial and Bending Capacity							
Location of Neutral Axis, c			=	21.7	in		
Resultant Steel Force, T_s			=	163	k		
Resultant Masonry Force, C_m			=	238	k		
Steel Lever Arm, d_{st}			=	23	in		
Masonry Lever Arm, d_m			=	60	in		
Design Axial Capacity, ϕP_n	=	$\phi_c(C_m-T_s)$	=	67	k		
Design Moment Capacity, ϕM_n	=	$\phi_b(C_m*d_m+T_s*d_s)$	=	1346	k-ft		
Nom Moment Capacity, M_n	=	M_n/ϕ_b	=	1496	k-ft		
Combined Axial and Bending			**$R_u/\phi R_n$**	=	0.10	<	1.0 OK

SHEAR (LOADING TO RIGHT)

RE: 9.3.4.1.2

Only controlling combination is presented here. More information available upon request

Controlling Combination		=	Combo 7		
Ultimate Axial Load, P_u		=	67	k	
Ultimate Bending Moment, M_u		=	136	k-ft	
Ultimate Shear Load, V_u		=	6	k	
Depth of masonry, d_v	= l_w	=	9	ft	
Aspect Ratio, λ	= $M_u/(V_u d_v)$	=	2.6		
Area of Vertical Steel, A_s	= $N_w * A_{s,web}$	=	2	in^2	
Web Thickness, t_w		=	15.3	in	
Gross Area of Masonry, A_g	= $l_w * t_w$ -1 ($l_o * t$)	=	1617	in^2	
Net Area of Masonry, A_n	= $A_g - A_s$	=	1615	in^2	
Area of Shear Reinf, A_v/s		=	0.006	in^2	
Masonry Shear Strength, V_m	= $[4.0-1.75\lambda]\, An \sqrt{f'_m} + 0.25 P_u$	=	179	k	Eqn 9-24
Horiz Reinf Shear Strength, V_s	= $0.5(A_v/s) f_y d_v$	=	21	k	Eqn 9-25
Nominal Shear Strength, V_n	= $V_m + V_s$	=	200	k	Eqn 9-21
Cap factor, x		=	4.0		Eqn 9-23
Maximum Shear Strength, V_n	= $xA_n\sqrt{f'_m}$	=	289	k	
Controlling Shear Strength, V_n		=	200	k	
Design Shear Capacity, ϕV_n	= $\phi_v V_n$	=	160	k	

Capacity Design (for Special Walls only) RE: 7.3.2.6.1.1

Actual Shear, V_u		=	6	k	
Nominal Bending Capacity, M_n		=	1395	k-ft	
Basic Adj Factor, K	= $1.25 M_n/M_u$	=	12.82		
Max Adj Factor, K		=	2.50		
Design Adj Factor, K		=	1.00	*(set to 1 for non-special wall)*	
Design Shear, V_u	= $K * V_u$	=	6	k	

Shear $V_u/\phi V_n$ = 0.04 < 1 OK

SHEAR (LOADING TO LEFT)

RE: 9.3.4.1.2

Only controlling combination is presented here. More information available upon request

Controlling Combination		=	Combo 7		
Ultimate Axial Load, P_u		=	67	k	
Ultimate Bending Moment, M_u		=	136	k-ft	
Ultimate Shear Load, V_u		=	6	k	
Depth of masonry, d_v	= l_w	=	9	ft	
Aspect Ratio, λ	= $M_u/(V_u d_v)$	=	2.6		
Area of Vertical Steel, A_s	= $N_w * A_{s,web}$	=	2	in^2	
Web Thickness, t_w		=	15.3	in	
Gross Area of Masonry, A_g	= $l_w * t_w$ -1 ($l_o * t$)	=	1617	in^2	
Net Area of Masonry, A_n	= $A_g - A_s$	=	1615	in^2	
Area of Shear Reinf, A_v/s		=	0.006	in^2	
Masonry Shear Strength, V_m	= $[4.0-1.75\lambda]\, An \sqrt{f'_m} + 0.25 P_u$	=	179	k	Eqn 9-24
Horiz Reinf Shear Strength, V_s	= $0.5(A_v/s) f_y d_v$	=	21	k	Eqn 9-25
Nominal Shear Strength, V_n	= $V_m + V_s$	=	200	k	Eqn 9-21
Cap factor, x		=	4.0		Eqn 9-23
Maximum Shear Strength, V_n	= $xA_n\sqrt{f'_m}$	=	289	k	
Controlling Shear Strength, V_n		=	200	k	
Design Shear Capacity, ϕV_n	= $\phi_v V_n$	=	160	k	

Capacity Design (for Special Walls only) RE: 7.3.2.6.1.1

Actual Shear, V_u		=	6	k	
Maximum Nominal Bending Capacity, M_n		=	1496	k-ft	
Basic Adj Factor, K	= $1.25 M_n/M_u$	=	13.75		
Max Adj Factor, K		=	2.50		
Design Adj Factor, K		=	1.00	*(set to 1 for non-special wall)*	
Design Shear, V_u	= $K * V_u$	=	6	k	

Shear $V_u/\phi V_n$ = 0.04 < 1 OK

BOUNDARY ELEMENTS (LOADING TO RIGHT) RE: 9.3.6.5

Boundary elements are required when maximum steel is exceeded in conjuction with Criteria 1 not passing or maximum steel is exceeded in conjunction with Criteria 2 or 3 not passing.

Maximum Steel

Ratio, α_{limit}/α		=	0.06	PASS	9.3.6.5
Controlling Combination		=	Combo 7		
Ultimate Axial Load, P_u		=	67	k	
Ultimate Bending Moment, M_u		=	136	k-ft	
Ultimate Shear Load, V_u		=	6	k	
	$[4.0-1.75\lambda]\,An\,\sqrt{f'_m}+0.25P_u$				
Criteria 1					
Axial Limit	= $0.10\ A_g f'_m$	=	423	k	
Ratio		=	0.2	PASS	9.3.6.5.1
	$xA_n\sqrt{f'_m}$				
Criteria 2					
$M_u/(V_u d_v)$ limit		=	1.0		
$M_u/(V_u d_v)$		=	2.6		
Ratio	= R_u/R_{limit}	=	2.6	FAIL	9.3.6.5.1
Criteria 3					
Shear Limit	= $3A_n\sqrt{f'_m}$	=	217	k	
Applied Shear	= V_u	=	6	k	
Ratio A		=	0.03	PASS	9.3.6.5.1
$M_u/(V_u d_v)$ limit		=	3.0		
$M_u/(V_u d_v)$		=	2.6		
Ratio B		=	0.86	PASS	
Boundary Elements Requirement					
No BE Req'd Case 1 (Max Steel = Pass)		=	True		
No BE Req'd Case 2 (Criteria 1= Pass and Criteria 2 =Pass)		=	False		
No BE Req'd - Case 3 (Criteria 1= Pass and Criteria 3A/B =Pass)		=	True		
Boundary Elements Required		=	No		

(if any of the No BE Req'd Cases are True then BE are not Required)

BOUNDARY ELEMENTS (LOADING TO LEFT) RE: 9.3.6.5

Boundary elements are required when maximum steel is exceeded in conjuction with Criteria 1 not passing or maximum steel is exceeded in conjunction with Criteria 2 or 3 not passing.

Maximum Steel

Ratio, α_{limit}/α		=	0.77	PASS	9.3.6.5
Controlling Combination	$[4.0-1.75\lambda]\,An\sqrt{f'_m}+0.25P_u$	=	Combo 7		
Ultimate Axial Load, P_u		=	67	k	
Ultimate Bending Moment, M_u		=	136	k-ft	
Ultimate Shear Load, V_u		=	6	k	
	$xA_n\sqrt{f'_m}$				
Criteria 1					
Axial Limit	= 0.10 $A_g f'_m$	=	423	k	
Ratio		=	0.2	PASS	9.3.6.5.1
Criteria 2					
$M_u/(V_u d_v)$ limit		=	1.0		
$M_u/(V_u d_v)$		=	2.6		
Ratio	= R_u/R_{limit}	=	2.6	FAIL	9.3.6.5.1
Criteria 3					
Shear Limit	= $3A_n\sqrt{f'_m}$	=	217	k	
Applied Shear	= V_u	=	6	k	
Ratio A		=	0.03	PASS	9.3.6.5.1
$M_u/(V_u d_v)$ limit		=	3.0		
$M_u/(V_u d_v)$		=	2.6		
Ratio B		=	0.86	PASS	
Boundary Elements Requirement					
No BE Req'd Case 1 (Max Steel = Pass)		=	True		
No BE Req'd Case 2 (Criteria 1= Pass and Criteria 2 =Pass)		=	False		
No BE Req'd - Case 3 (Criteria 1= Pass and Criteria 3A/B =Pass)		=	True		
Boundary Elements Required		=	No		

(if any of the No BE Req'd Cases are True then BE are not Required)

MINIMUM TOTAL REINFORCMENT (WEBS)

RE: T7.3.2.6c

(this limit state only applies to special walls)

Area of vert bar (or area at each spacing), $A_{bar,v}$		=	0.31	in^2		
Vert Reinf Ratio Prov, $\rho_{prov,v}$ = $(A_{bar,v}*12"/s)/(t*12")$		=	0.0017			
Area of horiz bar (or area at each spacing), $A_{bar,h}$		=	0.31	in^2		
Horiz Reinf Ratio Prov, $\rho_{prov,h}$ = $(A_{bar,h}*12"/s_h)/(t*12")$		=	0.0008			
Total Reinf Ratio Prov, ρ_{prov} = $\rho_{prov,v} + \rho_{prov,h}$		=	0.0025			
Total Reinf Ratio Req'd, ρ_{req}		=	0.0000			
ρ_{req}/ρ_{prov}		**=**	**0.00**	**<**	**1.0**	**OK**

MINIMUM VERTICAL REINFORCMENT (WEBS)

Minimum Bar Size Check

Area of bar (or area at each spacing), $A_{bar,v}$		=	0.31	in^2		
Minimum area of bar, A_{req}		=	0.20	in^2	T 7.3.2.3.1	
A_{req}/A_{bar}		=	0.65	<	1.0	OK

Max Spacing Check

Bar spacing, s		=	24.59375	in		
Max bar spacing limits						
Wall type limit, $s_{max,t}$		=	48	in	T 7.3.2.5	
Web length limit (special walls only), $s_{max,L}$	= L/3	=	35	in	T 7.3.2.6a	
Wall height limit (special walls only), $s_{max,h}$	= h/3	=	233	in	T 7.3.2.6a	
Controlling maximum spacing, s_{max}		=	48	in		
s/s_{max}		=	0.51	<	1.0	OK

Minimum Reinforcing Ratio Check *(only applies to speicial walls)*

Vert Reinf Ratio Prov, $\rho_{prov,v}$ = $(A_{bar,v}*12"/s)/(t*12")$		=	0.0017			
Reinf Ratio Required, ρ_{req} = Max(1/3*$\rho_{prov,h}$, 0.0007)		=	0.0000		T 7.3.2.6c	
ρ_{req}/ρ_{prov}		=	0.00	<	1.0	OK

Controlling case

Unity check max		**=**	**0.65**	**<**	**1.0**	**OK**
			Min bar size			

MINIMUM HORIZONTAL REINFORCMENT (WEBS)

Minimum Bar Size Check

Area of bar (or area at each spacing), $A_{bar,h}$		=	0.31	in^2		
Minimum area of bar, A_{req}		=	0.20	in^2	T 7.3.2.3.1	
A_{req}/A_{bar}		=	0.65	<	1.0	OK

Max Spacing Check

Bar spacing, s_h		=	48	in		
Max bar spacing limits						
Wall type limit, $s_{max,t}$		=	120	in	T 7.3.2.5	
Web length limit (special walls only), $s_{max,L}$	= L/3	=	35	in	T 7.3.2.6a	
Wall height limit (special walls only), $s_{max,h}$	= h/3	=	233	in	T 7.3.2.6a	
Controlling maximum spacing, s_{max}		=	120	in		
s/s_{max}		=	0.40	<	1.0	OK

Minimum Reinforcing Ratio Check *(only applies to speicial walls)*

Horiz Reinf Ratio Prov, $\rho_{prov,h}$ = $(A_{bar,h}*12"/s_h)/(t*12")$		=	0.0008			
Reinf Ratio Required, ρ_{req}		=	0.0000		T7.3.2.6c	
ρ_{req}/ρ_{prov}		=	0.00	<	1.0	OK

Controlling case

Unity check max		**=**	**0.65**	**<**	**1.0**	**OK**
			Min bar size			

MINIMUM TOTAL REINFORCMENT (FLANGE 1)

RE: T 7.3.2.6c

(this limit state only applies to special walls)

Area of vert bar (or area at each spacing), $A_{bar,v}$		=	0.31	in^2		
Vert Reinf Ratio Prov, $\rho_{prov,v}$ = $(A_{bar,v}*12"/s)/(t*12")$		=	0.0017			
Area of horiz bar (or area at each spacing), $A_{bar,h}$		=	0.31	in^2		
Horiz Reinf Ratio Prov, $\rho_{prov,h}$ = $(A_{bar,h}*12"/s_h)/(t*12")$		=	0.0008			
Total Reinf Ratio Prov, ρ_{prov} = $\rho_{prov,v} + \rho_{prov,h}$		=	0.0025			
Total Reinf Ratio Req'd, ρ_{req}		=	0.0000			
ρ_{req}/ρ_{prov}		**=**	**0.00**	**<**	**1.0**	**OK**

MINIMUM VERTICAL REINFORCMENT (FLANGE 1)

Minimum Bar Size Check

Area of bar (or area at each spacing), $A_{bar,v}$		=	0.31	in^2		
Minimum area of bar, A_{req}		=	0.20	in^2	T 7.3.2.3.1	
A_{req}/A_{bar}		=	0.65	<	1.0	OK

Max Spacing Check

Bar spacing, s		=	24	in		
Max bar spacing limits						
Wall type limit, $s_{max,t}$		=	48	in	T 7.3.2.5	
Flange length limit (special walls only), $s_{max,L}$	= L/3	=	39	in	T 7.3.2.6a	
Flange height limit (special walls only), $s_{max,h}$	= h/3	=	233	in	T 7.3.2.6a	
Controlling maximum spacing, s_{max}		=	48	in		
s/s_{max}		=	0.50	<	1.0	OK

Minimum Reinforcing Ratio Check *(only applies to speicial walls)*

Vert Reinf Ratio Prov, $\rho_{prov,v}$ = $(A_{bar,v}*12"/s)/(t*12")$		=	0.0017			
Reinf Ratio Required, ρ_{req} = Max(1/3*$\rho_{prov,h}$, 0.0007)		=	0.0000		T 7.3.2.6c	
ρ_{req}/ρ_{prov}		=	0.00	<	1.0	OK

Controlling case

Unity check max	**=**	**0.65**	**<**	**1.0**	**OK**
		Min bar size			

MINIMUM HORIZONTAL REINFORCMENT (FLANGE 1)

Minimum Bar Size Check

Area of bar (or area at each spacing), $A_{bar,h}$		=	0.31	in^2		
Minimum area of bar, A_{req}		=	0.20	in^2	T 7.3.2.3.1	
A_{req}/A_{bar}		=	0.65	<	1.0	OK

Max Spacing Check

Bar spacing, s_h		=	48	in		
Max bar spacing limits						
Wall type limit, $s_{max,t}$		=	120	in	T 7.3.2.5	
Flange length limit (special walls only), $s_{max,L}$	= L/3	=	39	in	T 7.3.2.6a	
Flange height limit (special walls only), $s_{max,h}$	= h/3	=	233	in	T 7.3.2.6a	
Controlling maximum spacing, s_{max}		=	120	in		
s/s_{max}		=	0.40	<	1.0	OK

Minimum Reinforcing Ratio Check *(only applies to speicial walls)*

Horiz Reinf Ratio Prov, $\rho_{prov,h}$ = $(A_{bar,h}*12"/s_h)/(t*12")$		=	0.0008			
Reinf Ratio Required, ρ_{req}		=	0.0000		T 7.3.2.6c	
ρ_{req}/ρ_{prov}		=	0.00	<	1.0	OK

Controlling case

Unity check max	**=**	**0.65**	**<**	**1.0**	**OK**
		Min bar size			

MINIMUM TOTAL REINFORCMENT (FLANGE 2)

RE: T7.3.2.6c

(this limit state only applies to special walls)

Area of vert bar (or area at each spacing), $A_{bar,v}$		=	0.31	in^2	
Vert Reinf Ratio Prov, $\rho_{prov,v}$ = $(A_{bar,v}*12"/s)/(t*12")$		=	0.0017		
Area of horiz bar (or area at each spacing), $A_{bar,h}$		=	0.31	in^2	
Horiz Reinf Ratio Prov, $\rho_{prov,h}$ = $(A_{bar,h}*12"/s_h)/(t*12")$		=	0.0008		
Total Reinf Ratio Prov, ρ_{prov} = $\rho_{prov,v} + \rho_{prov,h}$		=	0.0025		
Total Reinf Ratio Req'd, ρ_{req}		=	0.0000		
ρ_{req}/ρ_{prov}		=	**0.00**	< **1.0**	**OK**

MINIMUM VERTICAL REINFORCMENT (FLANGE 2)

Minimum Bar Size Check

Area of bar (or area at each spacing), $A_{bar,v}$		=	0.31	in^2	
Minimum area of bar, A_{req}		=	0.20	in^2	T 7.3.2.3.1
A_{req}/A_{bar}		=	0.65	< 1.0	OK

Max Spacing Check

Bar spacing, s		=	24	in	
Max bar spacing limits					
Wall type limit, $s_{max,t}$		=	48	in	T 7.3.2.5
Flange length limit (special walls only), $s_{max,L}$	= L/3	=	0	in	T 7.3.2.6a
Flange height limit (special walls only), $s_{max,h}$	= h/3	=	233	in	T 7.3.2.6a
Controlling maximum spacing, s_{max}		=	48	in	
s/s_{max}		=	0.50	< 1.0	OK

Minimum Reinforcing Ratio Check *(only applies to speicial walls)*

Vert Reinf Ratio Prov, $\rho_{prov,v}$ = $(A_{bar,v}*12"/s)/(t*12")$		=	0.0017		
Reinf Ratio Required, ρ_{req} = Max(1/3*$\rho_{prov,h}$, 0.0007)		=	0.0000		T 7.3.2.6c
ρ_{req}/ρ_{prov}		=	0.00	< 1.0	OK

Controlling case

Unity check max		=	**0.65**	< **1.0**	**OK**
			Min bar size		

MINIMUM HORIZONTAL REINFORCMENT (FLANGE 2)

Minimum Bar Size Check

Area of bar (or area at each spacing), $A_{bar,h}$		=	0.31	in^2	
Minimum area of bar, A_{req}		=	0.20	in^2	T 7.3.2.3.1
A_{req}/A_{bar}		=	0.65	< 1.0	OK

Max Spacing Check

Bar spacing, s_h		=	48	in	
Max bar spacing limits					
Wall type limit, $s_{max,t}$		=	120	in	T 7.3.2.5
Flange length limit (special walls only), $s_{max,L}$	= L/3	=	0	in	T 7.3.2.6a
Flange height limit (special walls only), $s_{max,h}$	= h/3	=	233	in	T 7.3.2.6a
Controlling maximum spacing, s_{max}		=	120	in	
s/s_{max}		=	0.40	< 1.0	OK

Minimum Reinforcing Ratio Check *(only applies to speicial walls)*

Horiz Reinf Ratio Prov, $\rho_{prov,h}$ = $(A_{bar,h}*12"/s_h)/(t*12")$		=	0.0008		
Reinf Ratio Required, ρ_{req}		=	0.0000		T 7.3.2.6c
ρ_{req}/ρ_{prov}		=	0.00	< 1.0	OK

Controlling case

Unity check max		=	**0.65**	< **1.0**	**OK**
			Min bar size		

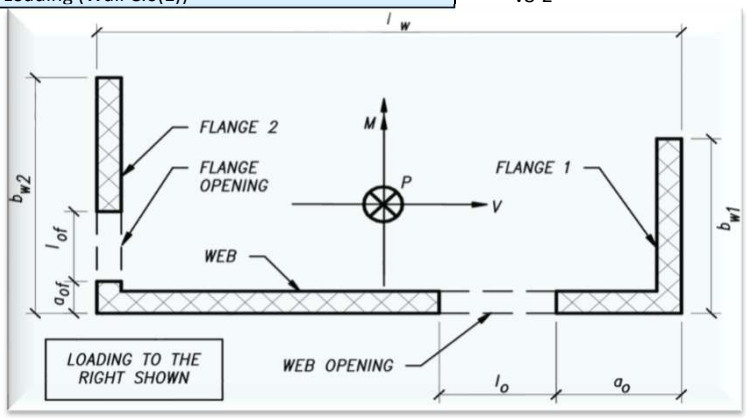
REINFORCED MASONRY IN-PLANE ANALYSIS

Governing code: TMS 402/602-16 - Strength Design (T), ASCE7-16 (A)

Description CMU Elevator Core - East-West Loading (Wall C.6(1)) v8-2

DESIGN LOADS

	Axial	Moment	Shear
D	76k	k-ft	k
L	5k	k-ft	k
S	9k	k-ft	k
W	k	121k-ft	7k
Q_E	k	208k-ft	10k
S_{DS}		=	0.2



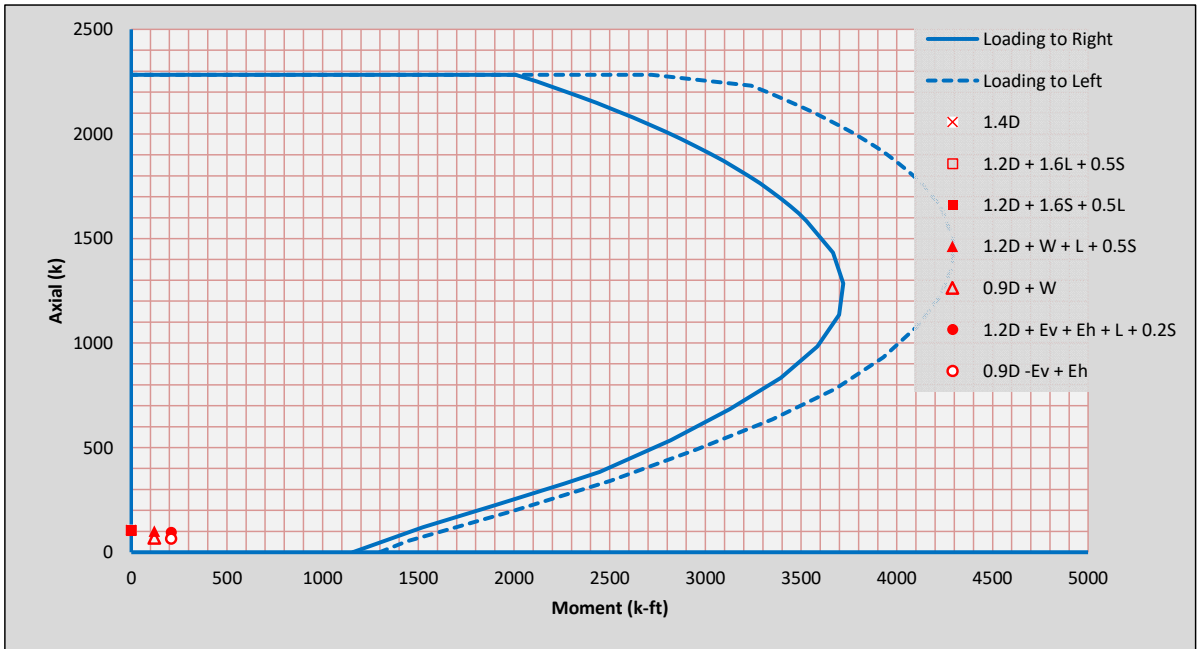
GENERAL

Number of Webs, N_{web}	=	2
Number of Flanges, N_{flg}	=	1
Section Type	=	C
Shear Wall Type	=	Intermediate
Masonry Units	=	8in CMU
Bond Pattern	=	Running
Masonry Strength, f'_m	=	2000 psi
Flr to Flr height, h_w	=	10.5 ft
Total wall height, h	=	58.3 ft
Horizontal Bars	=	#5H
Horizontal spacing, s_h	=	@ 48 in
All Reinforcement, f_y	=	60 ksi

WEB(S) (Length not increment of cell spacing)

Length, l_w	=	117 in
Opening Length, l_O	=	in
Opening Location, a_O	=	in
Opening in Both Webs	=	No
Vertical Bars	=	#5V
Vertical Bar Spacing, s	=	24 in
No. bar layers, N_w	=	6

FLANGE(S)		Flange 1	Flange 2	
Actual Width, b_w	=	106 in	in	
Opening Length, l_{of}	=	in		
Opening Location, a_{of}	=	in	in	
Vertical Bars	=	#5V	#5V	
Reinf Spacing, s_f	=	24 in	24 in	
Compression Flange				
Code (6t)	=	48 in	48 in	T 5.1.1.2.3a
Design Width, b	=	48 in	in	
No. bar rows	=	2	2	
Tension Flange				
Code (0.75*h_w)	=	95 in	94.5	T 5.1.1.2.3c
Design Width, b_t	=	95 in	0	
No. bar rows	=	3	2	



LIMIT STATE SUMMARY (LOADING TO RIGHT)						LIMIT STATE SUMMARY (LOADING TO LEFT)					
		$R_u/\phi R_n$		Limit				$R_u/\phi R_n$		Limit	
MAXIMUM REINFORCING	✓	0.11	≤	100.0	*	MAXIMUM REINFORCING	✓	0.69	≤	100.0	**
BENDING/COMPRESSION	✓	0.16	≤	1.0		BENDING/COMPRESSION	✓	0.14	≤	1.0	
SHEAR	✓	0.10	≤	1.0		SHEAR	✓	0.10	≤	1.0	
BOUNDARY ELEMENTS	✓	Not Required				BOUNDARY ELEMENTS	✓	Not Required			
**Maximum Reinforcing Limits Relaxed by Satisfying Section T 9.3.6.5*						***Maximum Reinforcing Limits Relaxed by Satisfying Section T 9.3.6.5*					

MINIMUM REINFORCING CHECKS											
		Unity		Limit				Unity		Limit	
MIN TOTAL REINF WEB(S)	✓	0.00	≤	1.0	*Reinf Ratio*	MIN TOTAL REINF FLANGE 1	✓	0.00	≤	1.0	*Reinf Ratio*
MIN VERT REINF WEB(S)	✓	0.65	≤	1.0	*Min bar size*	MIN VERT REINF FLANGE 1	✓	0.65	≤	1.0	*Min bar size*
MIN HORIZ REINF WEB(S)	✓	0.65	≤	1.0	*Min bar size*	MIN HORIZ REINF FLANGE 1	✓	0.65	≤	1.0	*Min bar size*
						MIN TOTAL REINF FLANGE 2		0.00	≤	1.0	*Reinf Ratio*
						MIN VERT REINF FLANGE 2		0.65	≤	1.0	*Min bar size*
						MIN HORIZ REINF FLANGE 2		0.65	≤	1.0	*Min bar size*

RESISTANCE FACTORS RE: T 9.1.4

Shear Resistance factor, ϕ_v	=	0.8	9.1.4.5
Bending Resistance factor, ϕ_b	=	0.9	9.1.4.4
Axial Resistance Factor, ϕ_c	=	0.9	9.1.4.4

LOAD COMBINATIONS

				P_u	M_u	V_u	
Seismic Effects				kip	k-ft	kip	A 12.4-3
Horizontal Effect, E_h	=	Q_E	=	0	208	10	A Eqn 12.4-4a
Vertical Effect, E_v	=	$0.2S_{DS}D$	=	3	0	0	
Combinations							
Combination 1:	=	1.4D	=	106	0	0	A 2.3.1
Combination 2:	=	1.2D + 1.6L + 0.5S	=	104	0	0	A 2.3.1
Combination 3:	=	1.2D + 1.6S + 0.5L	=	108	0	0	A 2.3.1
Combination 4:	=	1.2D + 1.0W + L + .5S	=	101	121	7	A 2.3.1
Combination 5:	=	0.9D + 1.0W	=	68	121	7	A 2.3.1
Combination 6:	=	$1.2D + E_v + E_h + L + 0.2S$	=	96	208	10	A 2.3.6
Combination 7:	=	$0.9D - E_v + E_h$	=	65	208	10	A 2.3.6
Combination 8:	=	$1.0D + 0.75L + 0.525Q_E$	=	80	109	5	T 9.3.3.2.1

PURE COMPRESSION CAPACITY RE: T 9.3.4.1.1

Compression Resistance Factor, ϕ_c		=	0.9		T 9.1.4.4
Wall Thickness, t		=	7.6	in	
Web Thickness, t_w	= N_{web}*t	=	15.3	in	
Web Vertical Bar Area, $A_{s,web}$		=	0.31	in^2	
Flange Vertical Bar Area, $A_{s,fl}$		=	0.31	in^2	
Total Vertical Steel, A_{st}	= N_w*$A_{s,web}$ + (N_{f1}+N_{f2})$A_{s,fl}$	=	1.86	in^2	
Bottom Flange Width, b_1		=	48	in	
Top Flange Width, b_2		=	0	in	
Gross Area, A	= l_w*t_w +(b_1-tw)*t +(b2-tw)*t	=	1918	in^2	
Web Openings Area, A_{ow}	= 1 *(l_o*t)	=	0	in^2	
Flange Openings Area, A_{of}	= l_{of1}*t + l_{of2}*t	=	0	in^2	
Total Openings Area, A_o	= A_{ow} + A_{of}	=	0	in^2	
Masonry Gross Area, A_g	= A-A_o	=	1918	in^2	
Net Area, A_n	= A_g-A_{st}	=	1916	in^2	
Y-Axis Moment of Inertia (bending in-plane of web)					
Gross Moment of Inertia, I_{cy}		=	1.9E+06	in^4	
Net Moment of Inertia, I_y		=	1.9E+06	in^4	
X-Axis Moment of Inertia (bending in-plane of flange)					
Gross Moment of Inertia, I_{cx}		=	1.7E+06	in^4	
Net Moment of Inertia, I_x		=	1.7E+06	in^4	
Moment of Inertia, I	= min(I_x, I_y)	=	1.7E+06	in^4	
Radius of Gyration, r	= $\sqrt{I/A_g}$	=	29.9	in	
Effective Height, h	= h_w*1.2	=	12.6	ft	
Slenderness Criterion, λ_{crit}	= h/r	=	5.1		
Slenderness Penalty, λ	= 1-(h/140r)^2	=	1.00		
Compression Capacity, ϕP_n	= ϕ_c*0.8*[0.8*f'$_m$(A_n-A_{st})+f_y*A_{st}]*λ	=	**2282**	**k**	T Eqn 9-19

MAXIMUM STEEL (LOADING TO RIGHT) RE: 9.3.3.5

Max steel in reinforced masonry is defined by limiting the strain in the steel by the factor alpha (α) multiplied times the yield strain of the reinforcing. This is checked in this spreadsheet by determining the actual multiplication factor of the steel strain compared to yield strain. A unity ratio is reported as the limiting alpha verses the actual alpha.

Required Tensile Strain Factor, α_{limit}		=	3		T 9.3.3.5.2
Ultimate masonry strain, ε_{mu}		=	0.0025		T 3.3.2
Yield strain in steel, ε_y	= f_y/E_s	=	0.00207		
Axial load, N_u (Combination 8)		=	79.5	k	
N_u/ϕ		=	88	k	
Neutral axis, c		=	4.5	in	
Resultant Steel Force, T_s		=	186	k	
Resultant Masonry Force, C_m		=	275	k	
Axial load, N	= $C_m - T_s$	=	89	k	
Extreme steel lever, d		=	106	in	
Actual Tensile Strain Factor, α	= $(d*\varepsilon_{mu}/c - \varepsilon_{mu})/\varepsilon_y$	=	27.3		

**Maximum Reinforcing Limits Relaxed by Satisfying Section T 9.3.6.5*

α_{limit}/α = 0.11 < 100.0 OK

MAXIMUM STEEL (LOADING TO LEFT) RE: 9.3.3.5

Max steel in reinforced masonry is defined by limiting the strain in the steel by the factor alpha (α) multiplied times the yield strain of the reinforcing. This is checked in this spreadsheet by determining the actual multiplication factor of the steel strain compared to yield strain. A unity ratio is reported as the limiting alpha verses the actual alpha.

Required Tensile Strain Factor, α_{limit}		=	3.0		T 9.3.3.5.2
Ultimate masonry strain, ε_{mu}		=	0.0025		T 3.3.2
Yield strain in steel, ε_y	= f_y/E_s	=	0.00207		
Axial load, N_u (Combination 8)		=	79.5	k	
N_u/ϕ		=	88	k	
Neutral axis, c		=	22.9	in	
Resultant Steel Force, T_s		=	173	k	
Resultant Masonry Force, C_m		=	261	k	
Axial load, N	= $C_m - T_s$	=	89	k	
Extreme steel lever, d		=	106	in	
Actual Tensile Strain Factor, α	= $(d*\varepsilon_{mu}/c - \varepsilon_{mu})/\varepsilon_y$	=	4.4		

***Maximum Reinforcing Limits Relaxed by Satisfying Section T 9.3.6.5*

α_{limit}/α = 0.69 < 100.0 OK

BENDING/COMPRESSION (LOADING TO RIGHT) RE: 9.3.2

Only controlling combination is presented here. More information available upon request

Controlling Combination			=	Combo 7			
Ultimate Axial Load, P_u			=	65	k		
Ultimate Bending Moment, M_u			=	208	k-ft		
Ultimate Shear Load, V_u			=	10	k		
Axial and Bending Capacity							
Location of Neutral Axis, c			=	4.2	in		
Resultant Steel Force, T_s			=	186.0	k		
Resultant Masonry Force, C_m			=	259.6	k		
Steel Lever Arm, d_{st}			=	30.5	in		
Masonry Lever Arm, d_m			=	46.4	in		
Design Axial Capacity, ϕP_n	=	$\phi_c(C_m-T_s)$	=	66	k		
Design Moment Capacity, ϕM_n	=	$\phi_b(C_m*d_m+T_s*d_s)$	=	1329	k-ft		
Nom Moment Capacity, M_n	=	M_n/ϕ_b	=	1476	k-ft		
Combined Axial and Bending			**$R_u/\phi R_n$**	=	0.16	<	1.0 OK

BENDING/COMPRESSION (LOADING TO LEFT) RE: 9.3.2

Only controlling combination is presented here. More information available upon request

Controlling Combination			=	Combo 7			
Ultimate Axial Load, P_u			=	65	k		
Ultimate Bending Moment, M_u			=	208	k-ft		
Ultimate Shear Load, V_u			=	10	k		
Axial and Bending Capacity							
Location of Neutral Axis, c			=	22.2	in		
Resultant Steel Force, T_s			=	174	k		
Resultant Masonry Force, C_m			=	247	k		
Steel Lever Arm, d_{st}			=	25	in		
Masonry Lever Arm, d_m			=	63	in		
Design Axial Capacity, ϕP_n	=	$\phi_c(C_m-T_s)$	=	66	k		
Design Moment Capacity, ϕM_n	=	$\phi_b(C_m*d_m+T_s*d_s)$	=	1494	k-ft		
Nom Moment Capacity, M_n	=	M_n/ϕ_b	=	1660	k-ft		
Combined Axial and Bending			**$R_u/\phi R_n$**	=	0.14	<	1.0 OK

SHEAR (LOADING TO RIGHT) RE: 9.3.4.1.2

Only controlling combination is presented here. More information available upon request

Controlling Combination		=	Combo 7		
Ultimate Axial Load, P_u		=	65	k	
Ultimate Bending Moment, M_u		=	208	k-ft	
Ultimate Shear Load, V_u		=	10	k	
Depth of masonry, d_v	= l_w	=	10	ft	
Aspect Ratio, λ	= $M_u/(V_u d_v)$	=	2.1		
Area of Vertical Steel, A_s	= $N_w * A_{s,web}$	=	2	in^2	
Web Thickness, t_w		=	7.6	in	
Gross Area of Masonry, A_g	= $l_w * t_w$ -1 ($l_o * t$)	=	892	in^2	
Net Area of Masonry, A_n	= $A_g - A_s$	=	890	in^2	
Area of Shear Reinf, A_v/s		=	0.006	in^2	
Masonry Shear Strength, V_m	= $[4.0-1.75\lambda]\, An \sqrt{f'_m} + 0.25 P_u$	=	106	k	Eqn 9-24
Horiz Reinf Shear Strength, V_s	= $0.5(A_v/s) f_y d_v$	=	23	k	Eqn 9-25
Nominal Shear Strength, V_n	= $V_m + V_s$	=	129	k	Eqn 9-21
Cap factor, x		=	4.0		Eqn 9-23
Maximum Shear Strength, V_n	= $xA_n\sqrt{f'_m}$	=	159	k	
Controlling Shear Strength, V_n		=	129	k	
Design Shear Capacity, ϕV_n	= $\phi_v V_n$	=	103	k	

Capacity Design (for Special Walls only) RE: 7.3.2.6.1.1

Actual Shear, V_u		=	10	k	
Nominal Bending Capacity, M_n		=	1476	k-ft	
Basic Adj Factor, K	= $1.25 M_n/M_u$	=	8.87		
Max Adj Factor, K		=	2.50		
Design Adj Factor, K		=	1.00	*(set to 1 for non-special wall)*	
Design Shear, V_u	= $K * V_u$	=	10	k	

Shear $V_u/\phi V_n$ = 0.10 < 1 OK

SHEAR (LOADING TO LEFT) RE: 9.3.4.1.2

Only controlling combination is presented here. More information available upon request

Controlling Combination		=	Combo 7		
Ultimate Axial Load, P_u		=	65	k	
Ultimate Bending Moment, M_u		=	208	k-ft	
Ultimate Shear Load, V_u		=	10	k	
Depth of masonry, d_v	= l_w	=	10	ft	
Aspect Ratio, λ	= $M_u/(V_u d_v)$	=	2.1		
Area of Vertical Steel, A_s	= $N_w * A_{s,web}$	=	2	in^2	
Web Thickness, t_w		=	7.6	in	
Gross Area of Masonry, A_g	= $l_w * t_w$ -1 ($l_o * t$)	=	892	in^2	
Net Area of Masonry, A_n	= $A_g - A_s$	=	890	in^2	
Area of Shear Reinf, A_v/s		=	0.006	in^2	
Masonry Shear Strength, V_m	= $[4.0-1.75\lambda]\, An \sqrt{f'_m} + 0.25 P_u$	=	106	k	Eqn 9-24
Horiz Reinf Shear Strength, V_s	= $0.5(A_v/s) f_y d_v$	=	23	k	Eqn 9-25
Nominal Shear Strength, V_n	= $V_m + V_s$	=	129	k	Eqn 9-21
Cap factor, x		=	4.0		Eqn 9-23
Maximum Shear Strength, V_n	= $xA_n\sqrt{f'_m}$	=	159	k	
Controlling Shear Strength, V_n		=	129	k	
Design Shear Capacity, ϕV_n	= $\phi_v V_n$	=	103	k	

Capacity Design (for Special Walls only) RE: 7.3.2.6.1.1

Actual Shear, V_u		=	10	k	
Maximum Nominal Bending Capacity, M_n		=	1660	k-ft	
Basic Adj Factor, K	= $1.25 M_n/M_u$	=	9.98		
Max Adj Factor, K		=	2.50		
Design Adj Factor, K		=	1.00	*(set to 1 for non-special wall)*	
Design Shear, V_u	= $K * V_u$	=	10	k	

Shear $V_u/\phi V_n$ = 0.10 < 1 OK

BOUNDARY ELEMENTS (LOADING TO RIGHT) RE: 9.3.6.5

Boundary elements are required when maximum steel is exceeded in conjuction with Criteria 1 not passing or maximum steel is exceeded in conjunction with Criteria 2 or 3 not passing.

Maximum Steel

Ratio, α_{limit}/α		=	0.11	PASS	9.3.6.5
Controlling Combination		=	Combo 7		
Ultimate Axial Load, P_u		=	65	k	
Ultimate Bending Moment, M_u		=	208	k-ft	
Ultimate Shear Load, V_u		=	10	k	
	$[4.0-1.75\lambda]\,An\sqrt{f'_m}+0.25P_u$				
Criteria 1					
Axial Limit	= $0.05\ A_g f'_m$	=	192	k	
Ratio		=	0.3	PASS	9.3.6.5.1
	$xA_n\sqrt{f'_m}$				
Criteria 2					
$M_u/(V_u d_v)$ limit		=	1.0		
$M_u/(V_u d_v)$		=	2.1		
Ratio	= R_u/R_{limit}	=	2.1	FAIL	9.3.6.5.1
Criteria 3					
Shear Limit	= $3A_n\sqrt{f'_m}$	=	119	k	
Applied Shear	= V_u	=	10	k	
Ratio A		=	0.08	PASS	9.3.6.5.1
$M_u/(V_u d_v)$ limit		=	3.0		
$M_u/(V_u d_v)$		=	2.1		
Ratio B		=	0.71	PASS	
Boundary Elements Requirement					
No BE Req'd Case 1 (Max Steel = Pass)		=	True		
No BE Req'd Case 2 (Criteria 1= Pass and Criteria 2 =Pass)		=	False		
No BE Req'd - Case 3 (Criteria 1= Pass and Criteria 3A/B =Pass)		=	True		
Boundary Elements Required		=	No		

(if any of the No BE Req'd Cases are True then BE are not Required)

BOUNDARY ELEMENTS (LOADING TO LEFT) RE: 9.3.6.5

Boundary elements are required when maximum steel is exceeded in conjuction with Criteria 1 not passing or maximum steel is exceeded in conjunction with Criteria 2 or 3 not passing.

Maximum Steel

Ratio, α_{limit}/α		=	0.69	PASS	9.3.6.5
Controlling Combination	$[4.0-1.75\lambda]\,An\sqrt{f'_m}+0.25P_u$	=	Combo 7		
Ultimate Axial Load, P_u		=	65	k	
Ultimate Bending Moment, M_u		=	208	k-ft	
Ultimate Shear Load, V_u		=	10	k	
	$xA_n\sqrt{f'_m}$				
Criteria 1					
Axial Limit	= 0.05 $A_g f'_m$	=	192	k	
Ratio		=	0.3	PASS	9.3.6.5.1
Criteria 2					
$M_u/(V_u d_v)$ limit		=	1.0		
$M_u/(V_u d_v)$		=	2.1		
Ratio	= R_u/R_{limit}	=	2.1	FAIL	9.3.6.5.1
Criteria 3					
Shear Limit	= $3A_n\sqrt{f'_m}$	=	119	k	
Applied Shear	= V_u	=	10	k	
Ratio A		=	0.08	PASS	9.3.6.5.1
$M_u/(V_u d_v)$ limit		=	3.0		
$M_u/(V_u d_v)$		=	2.1		
Ratio B		=	0.71	PASS	
Boundary Elements Requirement					
No BE Req'd Case 1 (Max Steel = Pass)		=	True		
No BE Req'd Case 2 (Criteria 1= Pass and Criteria 2 =Pass)		=	False		
No BE Req'd - Case 3 (Criteria 1= Pass and Criteria 3A/B =Pass)		=	True		
Boundary Elements Required		=	No		

(if any of the No BE Req'd Cases are True then BE are not Required)

MINIMUM TOTAL REINFORCMENT (WEBS)

RE: T7.3.2.6c

(this limit state only applies to special walls)

Area of vert bar (or area at each spacing), $A_{bar,v}$		=	0.31	in^2		
Vert Reinf Ratio Prov, $\rho_{prov,v}$ = $(A_{bar,v}*12"/s)/(t*12")$		=	0.0019			
Area of horiz bar (or area at each spacing), $A_{bar,h}$		=	0.31	in^2		
Horiz Reinf Ratio Prov, $\rho_{prov,h}$ = $(A_{bar,h}*12"/s_h)/(t*12")$		=	0.0008			
Total Reinf Ratio Prov, ρ_{prov} = $\rho_{prov,v} + \rho_{prov,h}$		=	0.0027			
Total Reinf Ratio Req'd, ρ_{req}		=	0.0000			
ρ_{req}/ρ_{prov}		**=**	**0.00**	**<**	**1.0**	**OK**

MINIMUM VERTICAL REINFORCMENT (WEBS)

Minimum Bar Size Check

Area of bar (or area at each spacing), $A_{bar,v}$		=	0.31	in^2		
Minimum area of bar, A_{req}		=	0.20	in^2	T 7.3.2.3.1	
A_{req}/A_{bar}		=	0.65	<	1.0	OK

Max Spacing Check

Bar spacing, s		=	21.875	in		
Max bar spacing limits						
Wall type limit, $s_{max,t}$		=	48	in	T 7.3.2.5	
Web length limit (special walls only), $s_{max,L}$	= L/3	=	39	in	T 7.3.2.6a	
Wall height limit (special walls only), $s_{max,h}$	= h/3	=	233	in	T 7.3.2.6a	
Controlling maximum spacing, s_{max}		=	48	in		
s/s_{max}		=	0.46	<	1.0	OK

Minimum Reinforcing Ratio Check *(only applies to speicial walls)*

Vert Reinf Ratio Prov, $\rho_{prov,v}$ = $(A_{bar,v}*12"/s)/(t*12")$		=	0.0019			
Reinf Ratio Required, ρ_{req} = Max(1/3*$\rho_{prov,h}$, 0.0007)		=	0.0000		T 7.3.2.6c	
ρ_{req}/ρ_{prov}		=	0.00	<	1.0	OK

Controlling case

Unity check max		**=**	**0.65**	**<**	**1.0**	**OK**
			Min bar size			

MINIMUM HORIZONTAL REINFORCMENT (WEBS)

Minimum Bar Size Check

Area of bar (or area at each spacing), $A_{bar,h}$		=	0.31	in^2		
Minimum area of bar, A_{req}		=	0.20	in^2	T 7.3.2.3.1	
A_{req}/A_{bar}		=	0.65	<	1.0	OK

Max Spacing Check

Bar spacing, s_h		=	48	in		
Max bar spacing limits						
Wall type limit, $s_{max,t}$		=	120	in	T 7.3.2.5	
Web length limit (special walls only), $s_{max,L}$	= L/3	=	39	in	T 7.3.2.6a	
Wall height limit (special walls only), $s_{max,h}$	= h/3	=	233	in	T 7.3.2.6a	
Controlling maximum spacing, s_{max}		=	120	in		
s/s_{max}		=	0.40	<	1.0	OK

Minimum Reinforcing Ratio Check *(only applies to speicial walls)*

Horiz Reinf Ratio Prov, $\rho_{prov,h}$ = $(A_{bar,h}*12"/s_h)/(t*12")$		=	0.0008			
Reinf Ratio Required, ρ_{req}		=	0.0000		T7.3.2.6c	
ρ_{req}/ρ_{prov}		=	0.00	<	1.0	OK

Controlling case

Unity check max		**=**	**0.65**	**<**	**1.0**	**OK**
			Min bar size			

MINIMUM TOTAL REINFORCMENT (FLANGE 1)

RE: T 7.3.2.6c

(this limit state only applies to special walls)

Area of vert bar (or area at each spacing), $A_{bar,v}$		=	0.31	in^2		
Vert Reinf Ratio Prov, $\rho_{prov,v}$ = $(A_{bar,v}*12"/s)/(t*12")$		=	0.0017			
Area of horiz bar (or area at each spacing), $A_{bar,h}$		=	0.31	in^2		
Horiz Reinf Ratio Prov, $\rho_{prov,h}$ = $(A_{bar,h}*12"/s_h)/(t*12")$		=	0.0008			
Total Reinf Ratio Prov, ρ_{prov} = $\rho_{prov,v} + \rho_{prov,h}$		=	0.0025			
Total Reinf Ratio Req'd, ρ_{req}		=	0.0000			
ρ_{req}/ρ_{prov}		**=**	**0.00**	**<**	**1.0**	**OK**

MINIMUM VERTICAL REINFORCMENT (FLANGE 1)

Minimum Bar Size Check

Area of bar (or area at each spacing), $A_{bar,v}$		=	0.31	in^2		
Minimum area of bar, A_{req}		=	0.20	in^2	T 7.3.2.3.1	
A_{req}/A_{bar}		=	0.65	<	1.0	OK

Max Spacing Check

Bar spacing, s		=	24	in		
Max bar spacing limits						
Wall type limit, $s_{max,t}$		=	48	in	T 7.3.2.5	
Flange length limit (special walls only), $s_{max,L}$ = L/3		=	35	in	T 7.3.2.6a	
Flange height limit (special walls only), $s_{max,h}$ = h/3		=	233	in	T 7.3.2.6a	
Controlling maximum spacing, s_{max}		=	48	in		
s/s_{max}		=	0.50	<	1.0	OK

Minimum Reinforcing Ratio Check *(only applies to speicial walls)*

Vert Reinf Ratio Prov, $\rho_{prov,v}$ = $(A_{bar,v}*12"/s)/(t*12")$		=	0.0017			
Reinf Ratio Required, ρ_{req} = Max(1/3*$\rho_{prov,h}$, 0.0007)		=	0.0000		T 7.3.2.6c	
ρ_{req}/ρ_{prov}		=	0.00	<	1.0	OK

Controlling case

Unity check max	**=**	**0.65**	**<**	**1.0**	**OK**
		Min bar size			

MINIMUM HORIZONTAL REINFORCMENT (FLANGE 1)

Minimum Bar Size Check

Area of bar (or area at each spacing), $A_{bar,h}$		=	0.31	in^2		
Minimum area of bar, A_{req}		=	0.20	in^2	T 7.3.2.3.1	
A_{req}/A_{bar}		=	0.65	<	1.0	OK

Max Spacing Check

Bar spacing, s_h		=	48	in		
Max bar spacing limits						
Wall type limit, $s_{max,t}$		=	120	in	T 7.3.2.5	
Flange length limit (special walls only), $s_{max,L}$ = L/3		=	35	in	T 7.3.2.6a	
Flange height limit (special walls only), $s_{max,h}$ = h/3		=	233	in	T 7.3.2.6a	
Controlling maximum spacing, s_{max}		=	120	in		
s/s_{max}		=	0.40	<	1.0	OK

Minimum Reinforcing Ratio Check *(only applies to speicial walls)*

Horiz Reinf Ratio Prov, $\rho_{prov,h}$ = $(A_{bar,h}*12"/s_h)/(t*12")$		=	0.0008			
Reinf Ratio Required, ρ_{req}		=	0.0000		T 7.3.2.6c	
ρ_{req}/ρ_{prov}		=	0.00	<	1.0	OK

Controlling case

Unity check max	**=**	**0.65**	**<**	**1.0**	**OK**
		Min bar size			

MINIMUM TOTAL REINFORCMENT (FLANGE 2)

RE: T7.3.2.6c

(this limit state only applies to special walls)

Area of vert bar (or area at each spacing), $A_{bar,v}$	=	0.31	in^2	
Vert Reinf Ratio Prov, $\rho_{prov,v}$ = $(A_{bar,v}*12"/s)/(t*12")$	=	0.0017		
Area of horiz bar (or area at each spacing), $A_{bar,h}$	=	0.31	in^2	
Horiz Reinf Ratio Prov, $\rho_{prov,h}$ = $(A_{bar,h}*12"/s_h)/(t*12")$	=	0.0008		
Total Reinf Ratio Prov, ρ_{prov} = $\rho_{prov,v} + \rho_{prov,h}$	=	0.0025		
Total Reinf Ratio Req'd, ρ_{req}	=	0.0000		
ρ_{req}/ρ_{prov}	=	**0.00**	<	**1.0 OK**

MINIMUM VERTICAL REINFORCMENT (FLANGE 2)

Minimum Bar Size Check

Area of bar (or area at each spacing), $A_{bar,v}$	=	0.31	in^2	
Minimum area of bar, A_{req}	=	0.20	in^2	T 7.3.2.3.1
A_{req}/A_{bar}	=	0.65	< 1.0	OK

Max Spacing Check

Bar spacing, s	=	24	in	
Max bar spacing limits				
Wall type limit, $s_{max,t}$	=	48	in	T 7.3.2.5
Flange length limit (special walls only), $s_{max,L}$ = L/3	=	0	in	T 7.3.2.6a
Flange height limit (special walls only), $s_{max,h}$ = h/3	=	233	in	T 7.3.2.6a
Controlling maximum spacing, s_{max}	=	48	in	
s/s_{max}	=	0.50	< 1.0	OK

Minimum Reinforcing Ratio Check *(only applies to speicial walls)*

Vert Reinf Ratio Prov, $\rho_{prov,v}$ = $(A_{bar,v}*12"/s)/(t*12")$	=	0.0017		
Reinf Ratio Required, ρ_{req} = Max(1/3*$\rho_{prov,h}$, 0.0007)	=	0.0000		T 7.3.2.6c
ρ_{req}/ρ_{prov}	=	0.00	< 1.0	OK

Controlling case

Unity check max	=	**0.65**	< **1.0**	**OK**
		Min bar size		

MINIMUM HORIZONTAL REINFORCMENT (FLANGE 2)

Minimum Bar Size Check

Area of bar (or area at each spacing), $A_{bar,h}$	=	0.31	in^2	
Minimum area of bar, A_{req}	=	0.20	in^2	T 7.3.2.3.1
A_{req}/A_{bar}	=	0.65	< 1.0	OK

Max Spacing Check

Bar spacing, s_h	=	48	in	
Max bar spacing limits				
Wall type limit, $s_{max,t}$	=	120	in	T 7.3.2.5
Flange length limit (special walls only), $s_{max,L}$ = L/3	=	0	in	T 7.3.2.6a
Flange height limit (special walls only), $s_{max,h}$ = h/3	=	233	in	T 7.3.2.6a
Controlling maximum spacing, s_{max}	=	120	in	
s/s_{max}	=	0.40	< 1.0	OK

Minimum Reinforcing Ratio Check *(only applies to speicial walls)*

Horiz Reinf Ratio Prov, $\rho_{prov,h}$ = $(A_{bar,h}*12"/s_h)/(t*12")$	=	0.0008		
Reinf Ratio Required, ρ_{req}	=	0.0000		T 7.3.2.6c
ρ_{req}/ρ_{prov}	=	0.00	< 1.0	OK

Controlling case

Unity check max	=	**0.65**	< **1.0**	**OK**
		Min bar size		

Unfactored Lateral Loads to Foundation

Shear Wall Mark	Wall Length	Story Height	Wall Height	Story Shears		Overturning Moments		OMA	Unfactored Foundation Loading				Shear Wall Mark
				Wind	Seismic	Wind	Seismic		Shears		Vert T/C Load		
				1.0WL	1.0EL	(1.0M_{WL})	(1.0M_{EL})		1.0WL	1.0EL	1.0WL	1.0EL	
	[ft]	[ft]	[ft]	[kips]	[kips]	[kip-ft]	[kip-ft]	[ft]	[klf]	klf	[k]	[k]	
1(1)_L2	10.00	10.49	10.18	0.407	0.103	126.347	114.669	9.000	0.282	0.225	14.039	12.741	1(1)_L2
1(2)_L2	10.00	10.49	10.18	0.407	0.103	81.058	50.239	9.000	0.282	0.225	9.006	5.582	1(2)_L2
2(1)_L2	8.50	10.49	8.72	1.350	0.343	402.928	332.731	7.188	1.062	0.835	56.060	46.293	2(1)_L2
2(2)_L2	10.00	10.49	8.72	1.588	0.404	305.698	217.824	9.000	1.062	0.835	33.966	24.203	2(2)_L2
4(1)_L2	12.00	10.49	8.72	1.734	0.441	497.991	403.036	10.750	0.981	0.769	46.325	37.492	4(1)_L2
4(2)_L2	10.00	10.49	8.72	1.445	0.368	284.985	201.777	9.000	0.981	0.769	31.665	22.420	4(2)_L2
5(1)_L2	12.00	10.49	8.72	1.175	0.299	332.259	259.941	11.000	0.662	0.504	30.205	23.631	5(1)_L2
5(2)_L2	10.00	10.49	8.72	0.979	0.249	195.169	132.299	9.000	0.662	0.504	21.685	14.700	5(2)_L2
6(1)_L2	12.00	10.49	8.72	1.218	0.444	382.840	385.961	10.813	0.674	0.688	35.407	35.696	6(1)_L2
6(2)_L2	7.00	10.49	8.72	0.711	0.259	129.164	128.068	6.000	0.674	0.688	21.527	21.345	6(2)_L2
6(3)_L2	8.67	10.49	8.72	0.880	0.321	159.918	158.560	7.667	0.674	0.688	20.859	20.682	6(3)_L2
7(1)_L2	8.83	10.49	8.72	0.713	0.361	157.441	193.396	N/A	0.464	0.640	N/A	N/A	7(1)_L2
7(2)_L2	12.00	10.49	8.72	0.969	0.491	169.124	235.267	11.000	0.464	0.640	15.375	21.388	7(2)_L2
7(3)_L2	9.50	10.49	8.72	0.767	0.388	133.890	186.253	8.500	0.464	0.640	15.752	21.912	7(3)_L2
8(1)_L2	12.00	10.49	8.72	0.610	0.264	420.880	493.071	10.750	0.405	0.603	39.152	45.867	8(1)_L2
8(2)_L2	12.00	10.49	8.72	0.610	0.264	126.342	221.577	11.000	0.405	0.603	11.486	20.143	8(2)_L2
8(3)_L2	18.00	10.49	8.72	0.915	0.396	189.513	332.365	17.000	0.405	0.603	11.148	19.551	8(3)_L2
8(4)_L2	9.00	10.49	8.72	0.457	0.198	94.756	166.183	8.000	0.405	0.603	11.845	20.773	8(4)_L2
9(1)_L2	6.00	10.49	10.18	0.516	0.221	65.220	71.494	4.625	0.449	0.601	14.102	15.458	9(1)_L2
9(2)_L2	6.00	10.49	10.18	0.516	0.221	90.224	136.728	4.625	0.449	0.601	19.508	29.563	9(2)_L2
9(3)_L2	6.00	10.49	10.18	0.516	0.221	90.224	136.728	4.625	0.449	0.601	19.508	29.563	9(3)_L2
9(4)_L2	6.00	10.49	10.18	0.516	0.221	90.224	136.728	4.625	0.449	0.601	19.508	29.563	9(4)_L2
A(1)_L2	6.50	10.49	10.18	0.836	0.283	138.856	98.271	5.125	0.815	0.636	27.094	19.175	A(1)_L2
A(2)_L2	7.25	10.49	10.18	0.933	0.316	259.529	208.610	5.813	0.815	0.636	44.650	35.890	A(2)_L2
B.2(1)_L2	16.00	10.49	8.72	2.920	0.733	656.791	479.537	14.875	1.155	0.855	44.154	32.238	B.2(1)_L2
B.7(1)_L2	12.00	10.49	8.72	1.927	0.571	432.533	369.241	10.938	1.015	0.882	39.546	33.759	B.7(1)_L2
C.3(1)_L2	8.00	10.49	8.72	0.885	0.363	146.960	213.989	6.938	0.740	0.589	21.183	30.845	C.3(1)_L2
C.3(2)_L2	7.00	10.49	8.72	0.774	0.318	225.756	263.729	5.625	0.740	0.589	40.134	46.885	C.3(2)_L2
C.6(1)_L2	9.83	10.49	8.72	1.021	0.491	200.103	296.012	N/A	0.687	0.995	N/A	N/A	C.6(1)_L2
C.6(2)_L2	11.33	10.49	8.72	1.177	0.566	332.018	439.954	10.021	0.687	0.995	33.133	43.904	C.6(2)_L2
E(1)_L2	16.00	10.49	8.72	0.525	0.247	87.125	132.180	15.000	0.175	0.257	5.808	8.812	E(1)_L2
E(2)_L2	14.00	10.49	8.72	0.459	0.216	76.234	115.658	13.000	0.175	0.257	5.864	8.897	E(2)_L2
E(3)_L2	10.00	10.49	8.72	0.328	0.154	54.453	82.613	9.000	0.175	0.257	6.050	9.179	E(3)_L2
F(1)_L2	8.00	10.49	8.72	0.532	0.252	109.455	230.640	7.000	0.399	0.763	15.636	32.949	F(1)_L2
F(2)_L2	34.00	10.49	8.72	2.262	1.072	465.182	980.222	33.000	0.399	0.763	14.096	29.704	F(2)_L2
G(1)_L2	7.50	10.49	10.18	0.496	0.238	86.898	184.941	6.125	0.357	0.666	14.187	30.194	G(1)_L2
G(2)_L2	7.50	10.49	10.18	0.496	0.238	86.898	184.941	6.125	0.357	0.666	14.187	30.194	G(2)_L2
G(3)_L2	6.00	10.49	10.18	0.397	0.191	69.518	147.953	4.625	0.357	0.666	15.031	31.990	G(3)_L2
G(4)_L2	6.00	10.49	10.18	0.397	0.191	69.518	147.953	4.625	0.357	0.666	15.031	31.990	G(4)_L2
G(5)_L2	7.50	10.49	10.18	0.496	0.238	86.898	184.941	6.375	0.357	0.666	13.631	29.010	G(5)_L2

600. MISCELLANEOUS SYSTEMS

600 Miscellaneous Design Calculation Index:

Narrative	600
Stairs	601
Shade Structure	602
Building Shrinkage Calc	603

600. NARRATIVE

The following sections include calculations for miscellaneous components or elements within this project. These components or elements include the following

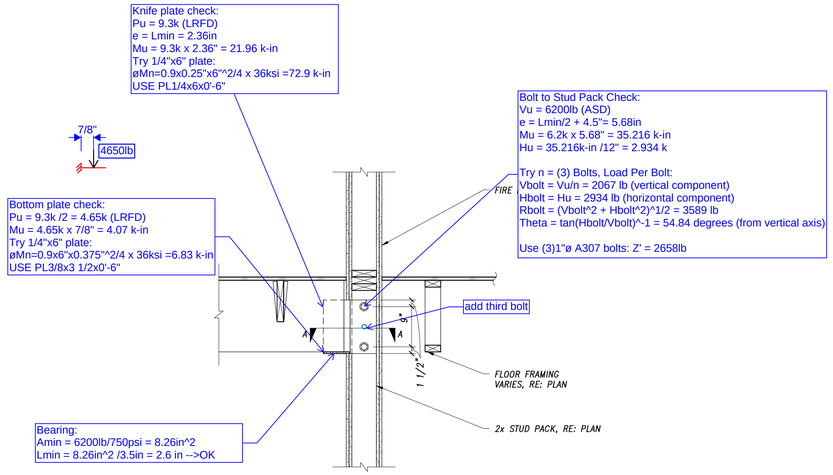
- Stairs – There are two stair cores within the project. Both are framed from wood stud walls and wood framed landings and stringers.
- Free-Standing Shade Structure – To the north of the building is a freestanding shade structure. The shade structure consists of shallow spread foundations, steel columns, steel beams, and 2x wood framing, and wood panel sheathing.

601. STAIRS

THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS ON THE PROJECT TO CLEARLY DEFINE ALL OF THE REQUIREMENTS FOR THE CONSTRUCTION. WHERE CONFLICTS OCCUR CONTACT ARCHITECT FOR CLARIFICATION.

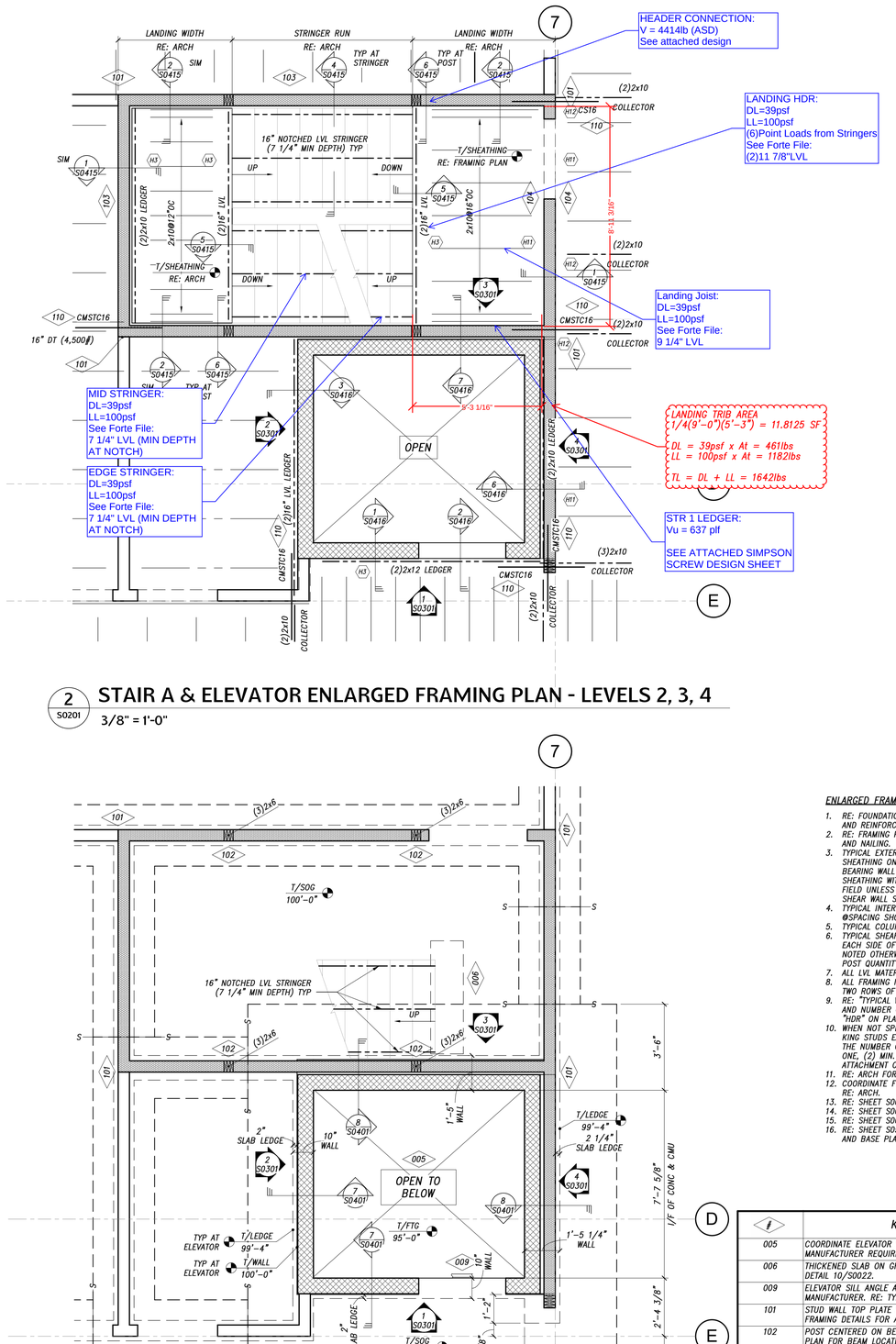
THE STRUCTURAL ENGINEERS SEAL ON THIS DRAWING INDICATES THAT THE INFORMATION SHOWN AND THE CALCULATIONS PERTAINING TO THAT INFORMATION HAVE BEEN PREPARED BY QUALIFIED PEOPLE UNDER THE DIRECTION OF THE ENGINEER-OF-RECORD. THE SEAL DOES NOT IMPLY RESPONSIBILITY FOR INFORMATION PREPARED BY OTHERS NOR FOR ANY INFORMATION NOT SHOWN ON THIS DRAWING AND SUCH RESPONSIBILITY IS SPECIFICALLY DISCLAIMED. ON PHASED PROJECTS, DRAWINGS THAT ARE ISSUED BUT NOT SEALED SHALL BE CONSIDERED TO BE PRELIMINARY IN NATURE AND ARE ISSUED FOR INFORMATION ONLY.

Fri 03/13/2026 03:37:05 PM



LANDING HEADER CONNECTION DETAIL

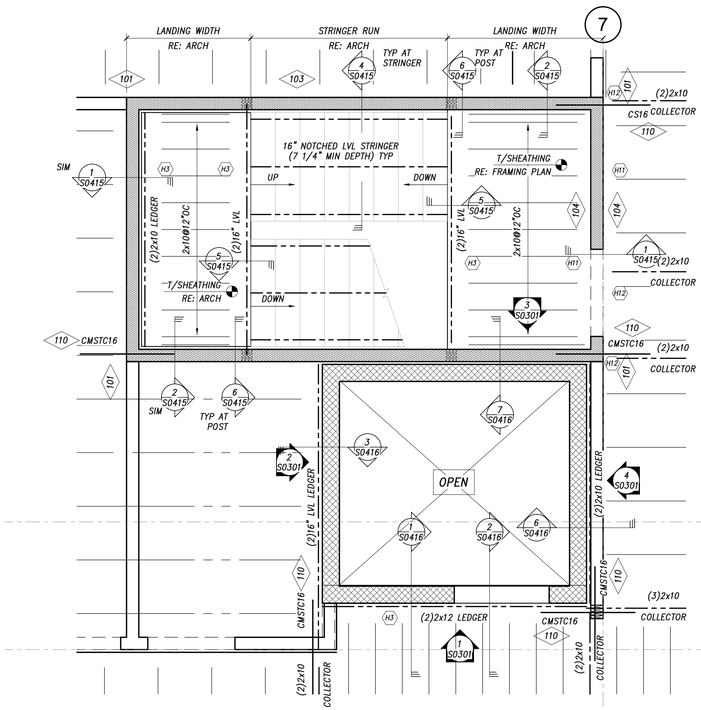
3/4" = 1'-0"



STAIR A & ELEVATOR ENLARGED FRAMING PLAN - LEVELS 2, 3, 4

2 S0201

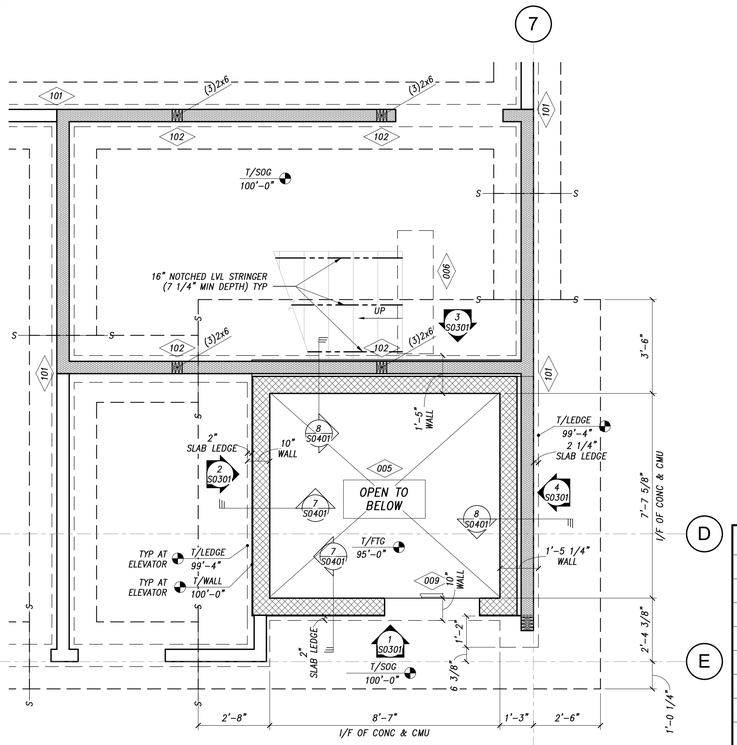
3/8" = 1'-0"



STAIR A & ELEVATOR ENLARGED FRAMING PLAN - LEVEL 5

3 S0201

3/8" = 1'-0"



STAIR A & ELEVATOR ENLARGED FRAMING PLAN - LEVEL 1

1 S0201

3/8" = 1'-0"

ENLARGED FRAMING PLAN NOTES:

1. *RE: FOUNDATION PLAN FOR FOOTING SIZE, ELEVATION AND REINFORCING AND SLAB-ON-GRADE INFORMATION.*
2. *RE: FRAMING PLANS FOR FLOOR AND ROOF SHEATHING AND NAILING.*
3. *TYPICAL EXTERIOR WALL IS 1/2" OSB/PLYWOOD WALL SHEATHING ON FRT 2x6 DFL No2@SPACING SHOWN IN BEARING WALL SCHEDULE, UNO. ATTACH WALL SHEATHING WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD UNLESS DESIGNATED AS A SHEAR WALL. RE: SHEAR WALL SCHEDULE FOR SHEAR WALL NAILING.*
4. *TYPICAL INTERIOR STRUCTURAL WALL IS 2x6 DFL No2 @SPACING SHOWN IN BEARING WALL SCHEDULE, UNO.*
5. *TYPICAL COLUMN IS (4)2x6 DFL No2, UNO.*
6. *TYPICAL SHEAR WALL BOUNDARY IS (2)2x6 DFL No2 EACH SIDE OF TENSION ROD, (4)2x6 TOTAL, UNLESS NOTED OTHERWISE ON PLAN. MATCH SAME BOUNDARY POST QUANTITY AT LEVEL(S) ABOVE, UNO.*
7. *ALL LVL MATERIAL IS 1 3/4" THICK, UNO.*
8. *ALL FRAMING INDICATED AS "COLLECTOR" TO RECEIVE TWO ROWS OF EDGE NAILING ALONG LENGTH.*
9. *RE: "TYPICAL WOOD HEADER TABLE" FOR HEADER SIZING AND NUMBER OF TRIMMER STUDS WHERE INDICATED "HDR" ON PLAN.*
10. *WHEN NOT SPECIFIED AS "HDR", MINIMUM NUMBER OF KING STUDS EACH SIDE OF OPENING IS EQUAL TO HALF THE NUMBER OF STUDS INTERRUPTED BY HEADER PLUS ONE, (2) MIN. RE: "TYPICAL WOOD HEADER TABLE" FOR ATTACHMENT OF HEADER TO KING STUDS.*
11. *RE: ARCH FOR WINDOW AND DOOR LOCATIONS.*
12. *COORDINATE FRAMING LAYOUT WITH LIGHTING LOCATIONS, RE: ARCH.*
13. *RE: SHEET S0001 FOR GENERAL NOTES AND LEGENDS.*
14. *RE: SHEET S0011 FOR LOAD KEYS.*
15. *RE: SHEET S0021 FOR TYPICAL DETAILS.*
16. *RE: SHEET S0501 FOR SHEAR WALL, HOLDOWN, HANGER, AND BASE PLATE SCHEDULES.*

#	KEYNOTE LEGEND
005	COORDINATE ELEVATOR SUMP LOCATION WITH ELEVATOR MANUFACTURER REQUIREMENTS.
006	THICKENED SLAB ON GRADE AT STAIR BOTTOM, RE: TYPICAL DETAIL 10/S0022.
009	ELEVATOR SILL ANGLE AT THRESHOLD AS REQUIRED BY ELEVATOR MANUFACTURER. RE: TYPICAL DETAIL 6/S0021.
101	STUD WALL TOP PLATE ELEVATION CHANGE ABOVE. REFER TO FRAMING DETAILS FOR ADDITIONAL INFORMATION.
102	POST CENTERED ON BEAM AT LEVEL ABOVE. REFER TO FRAMING PLAN FOR BEAM LOCATION TO LOCATE POST.
103	FIRE HANGERS AT WOOD TRUSS CONNECTION TO SHAFT WALL BY TRUSS SUPPLIER.
104	FIRE HANGERS AT 2x FRAMING TO SHAFT WALL, RE: HANGER SCHEDULE.
110	SIMPSON COLLECTOR STRAP BETWEEN COLLECTOR BEAM AND TOP PLATES OR LEDGER. FOR REQUIRED END LENGTH AND NAILS, RE: 2/S0504.
201	ELEVATOR HOIST BEAM. GC TO COORDINATE ORIENTATION, LOCATION AND ELEVATION WITH ELEVATOR MANUFACTURER REQUIREMENTS. FOR CONNECTION TO CMU WALL, RE: TYPICAL DETAILS.
202	STUD WALL TOP PLATE ELEVATION CHANGE. REFER TO FRAMING DETAILS FOR ADDITIONAL INFORMATION.

APPROVAL STAMPS:

No.	Date	Description

SUBMISSIONS & REVISIONS

OWNER

MAY REIGLER PROPERTIES
2201 Wisconsin Ave NW Suite 200
Washington, DC 20007
www.mayriegler.com

ARCHITECT

KEVIN & ASAKO SPERRY ARCHITECTURE
3318 N. Columbus Street
Arlington, VA 22207
T.312.636.3248 / 312.636.4252
www.kasa-arch.com

GENERAL CONTRACTOR

DENEUVE CONSTRUCTION
2344 Spruce Street
Boulder, CO 80302
T: 303.444.6633

CIVIL ENGINEER

LANDMARK ENGINEERING
141 9th Street, PO Box 774943
Steamboat Springs, CO 80477
T.970.871.9494

LANDSCAPE ARCHITECT

STRUCTURAL ENGINEER

KL&A ENGINEERS & BUILDERS
1717 Washington Ave.
Golden, CO 80401
T. 303.384.9910
© 2026 KL&A, INC
M.E.P. & F.P. ENGINEERS

BOULDER ENGINEERING
1717 15th Street
Boulder, CO 80302
T. 303.444.6038

INTERIOR DESIGNER:

JOHNSON NATHAN STROHE
1600 Wynkoop St., Suite 100
Denver, CO 80202
T.303.892.7062

PROJECT LOCATION

STEAMBOAT BASECAMP II

STEAMBOAT BASECAMP, LOT 2
STEAMBOAT SPRINGS, CO 80487

DRAWING TITLE

ENLARGED PLANS - STAIR A & ELEVATOR

SEAL

DATE: 03/13/26
DRAWN BY: CGC
CHECKED BY: PMK
PROJECT NO:

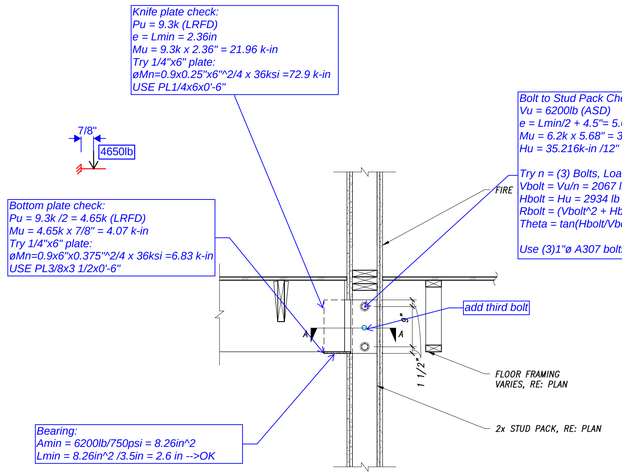
DRAWING NO: **S0201**

COPYRIGHT 2019

THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS ON THE PROJECT TO CLEARLY DEFINE ALL OF THE REQUIREMENTS FOR THE CONSTRUCTION. WHERE CONFLICTS OCCUR CONTACT ARCHITECT FOR CLARIFICATION.

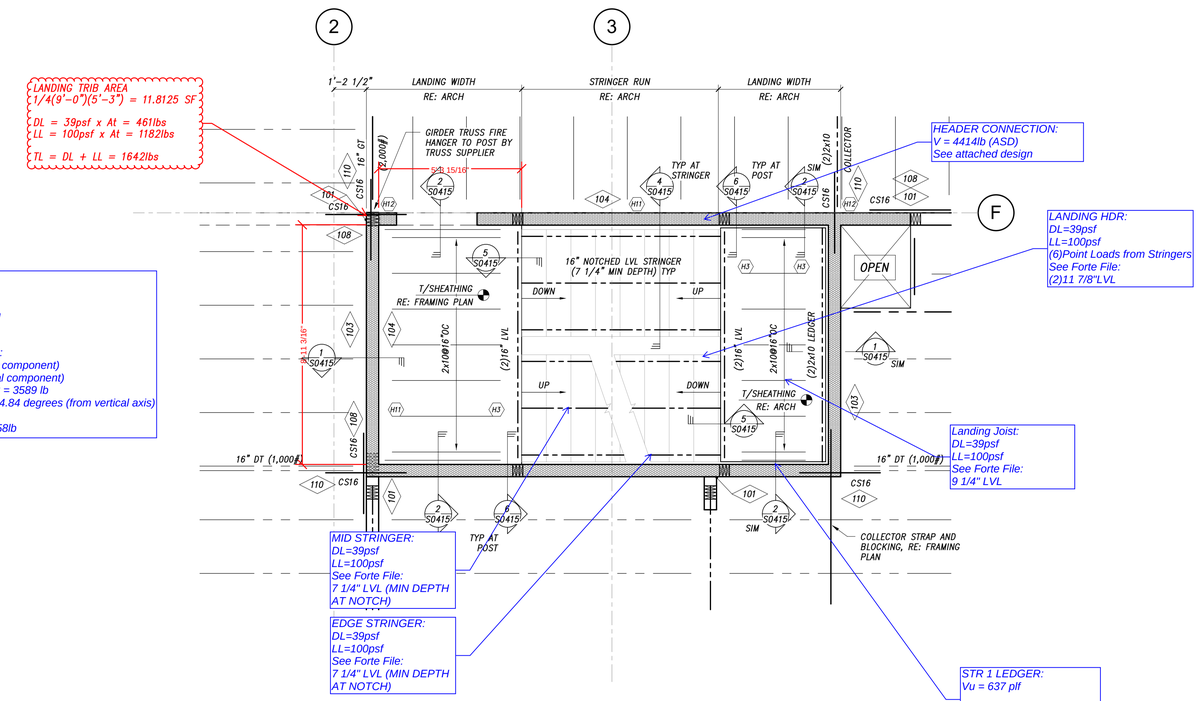
THE STRUCTURAL ENGINEERS SEAL ON THIS DRAWING INDICATES THAT THE INFORMATION SHOWN AND THE CALCULATIONS PERTAINING TO THAT INFORMATION HAVE BEEN PREPARED BY QUALIFIED PEOPLE UNDER THE DIRECTION OF THE ENGINEER-OF-RECORD. THE SEAL DOES NOT IMPLY RESPONSIBILITY FOR INFORMATION PREPARED BY OTHERS NOR FOR ANY INFORMATION NOT SHOWN ON THIS DRAWING AND SUCH RESPONSIBILITY IS SPECIFICALLY DISCLAIMED. ON PHASED PROJECTS, DRAWINGS THAT ARE ISSUED BUT NOT SEALED SHALL BE CONSIDERED TO BE PRELIMINARY IN NATURE AND ARE ISSUED FOR INFORMATION ONLY.

Fri 03/13/2026 03:37:07 PM



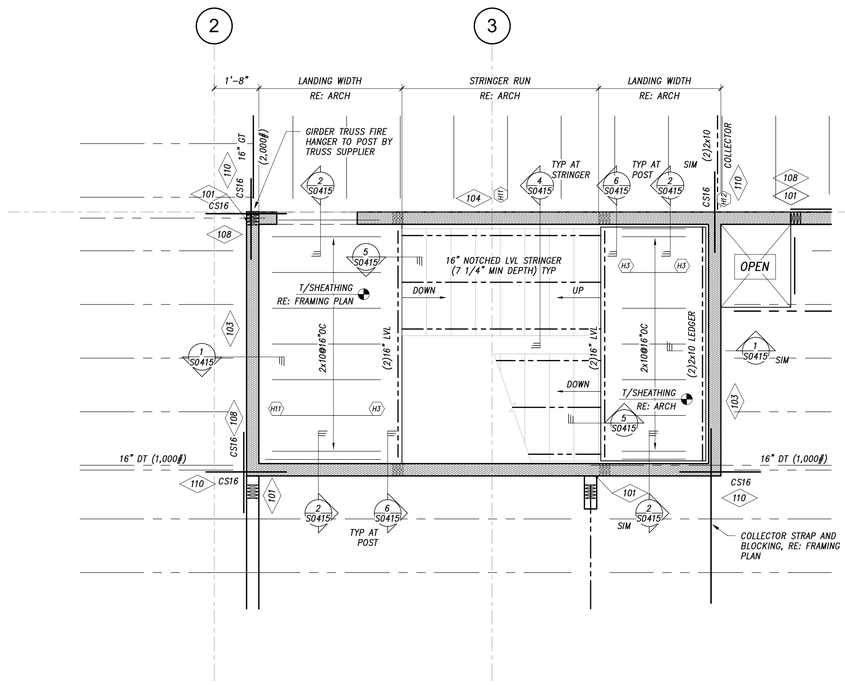
LANDING HEADER CONNECTION DETAIL

3/4" = 1'-0"



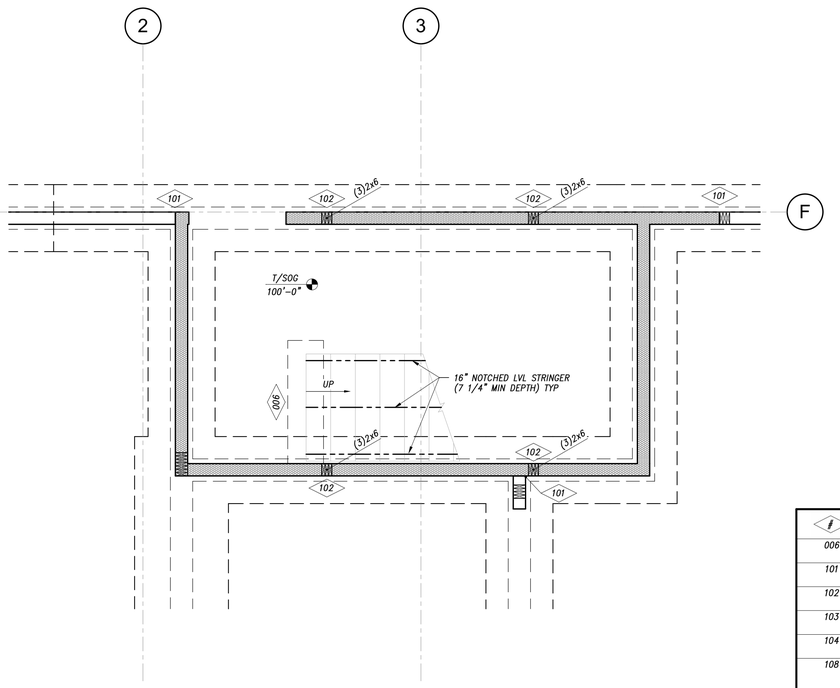
2 S0202 STAIR B ENLARGED FRAMING PLAN - LEVELS 2, 3, 4

3/8" = 1'-0"



3 S0202 STAIR B ENLARGED FRAMING PLAN - LEVEL 5

3/8" = 1'-0"



1 S0202 STAIR B ENLARGED FRAMING PLAN - LEVEL 1

3/8" = 1'-0"

ENLARGED FRAMING PLAN NOTES:

1. *RE: FOUNDATION PLAN FOR FOOTING SIZE, ELEVATION AND REINFORCING AND SLAB-ON-GRADE INFORMATION.*
2. *RE: FRAMING PLANS FOR FLOOR AND ROOF SHEATHING AND NAILING.*
3. *TYPICAL EXTERIOR WALL IS 1/2" OSB/PLYWOOD WALL SHEATHING ON FRT 2x6 DFL No2@SPACING SHOWN IN BEARING WALL SCHEDULE, UNO. ATTACH WALL SHEATHING WITH 8d@6"OC AT EDGES AND @12"OC IN FIELD UNLESS DESIGNATED AS A SHEAR WALL. RE: SHEAR WALL SCHEDULE FOR SHEAR WALL NAILING.*
4. *TYPICAL INTERIOR STRUCTURAL WALL IS 2x6 DFL No2 @SPACING SHOWN IN BEARING WALL SCHEDULE, UNO.*
5. *TYPICAL COLUMN IS (4)2x6 DFL No2, UNO.*
6. *TYPICAL SHEAR WALL BOUNDARY IS (2)2x6 DFL No2 EACH SIDE OF TENSION ROD, (4)2x6 TOTAL, UNLESS NOTED OTHERWISE ON PLAN. MATCH SAME BOUNDARY POST QUANTITY AT LEVEL(S) ABOVE, UNO.*
7. *ALL LVL MATERIAL IS 1 3/4" THICK, UNO.*
8. *ALL FRAMING INDICATED AS "COLLECTOR" TO RECEIVE TWO ROWS OF EDGE NAILING ALONG LENGTH.*
9. *RE: "TYPICAL WOOD HEADER TABLE" FOR HEADER SIZING AND NUMBER OF TRIMMER STUDS WHERE INDICATED "HDR" ON PLAN.*
10. *WHEN NOT SPECIFIED AS "HDR", MINIMUM NUMBER OF KING STUDS EACH SIDE OF OPENING IS EQUAL TO HALF THE NUMBER OF STUDS INTERRUPTED BY HEADER PLUS ONE, (2) MIN. RE: "TYPICAL WOOD HEADER TABLE" FOR ATTACHMENT OF HEADER TO KING STUDS.*
11. *RE: ARCH FOR WINDOW AND DOOR LOCATIONS.*
12. *COORDINATE FRAMING LAYOUT WITH LIGHTING LOCATIONS, RE: ARCH.*
13. *RE: SHEET S0001 FOR GENERAL NOTES AND LEGENDS.*
14. *RE: SHEET S0011 FOR LOAD KEYS.*
15. *RE: SHEET S0021 FOR TYPICAL DETAILS.*
16. *RE: SHEET S0501 FOR SHEAR WALL, HOLDOWN, HANGER, AND BASE PLATE SCHEDULES.*

#	KEYNOTE LEGEND
006	THICKENED SLAB ON GRADE AT STAIR BOTTOM, RE: TYPICAL DETAIL 10/S0022.
101	STUD WALL TOP PLATE ELEVATION CHANGE ABOVE. REFER TO FRAMING DETAILS FOR ADDITIONAL INFORMATION.
102	POST CENTERED ON BEAM AT LEVEL ABOVE. REFER TO FRAMING PLAN FOR BEAM LOCATION TO LOCATE POST.
103	FIRE HANGERS AT WOOD TRUSS CONNECTION TO SHAFT WALL BY TRUSS SUPPLIER.
104	FIRE HANGERS AT 2x FRAMING TO SHAFT WALL, RE: HANGER SCHEDULE.
108	STUD WALL TOP PLATE ELEVATION CHANGE AT COLLECTOR LINE. BLOCK AND STRAP ACROSS STEP IN TOP PLATES. RE: TYPICAL DETAIL 6/S0025.
110	SIMPSON COLLECTOR STRAP BETWEEN COLLECTOR BEAM AND TOP PLATES OR LEDGER. FOR REQUIRED END LENGTH AND NAILS, RE: 2/S0504.

APPROVAL STAMPS:

No.	Date	Description

SUBMISSIONS & REVISIONS

OWNER

MAY REIGLER PROPERTIES
2201 Wisconsin Ave NW Suite 200
Washington, DC 20007
www.mayriegler.com

ARCHITECT

KEVIN & ASAKO SPERRY ARCHITECTURE
3318 N. Columbus Street
Arlington, VA 22207
T.312.636.3248 / 312.636.4252
www.kasa-arch.com

GENERAL CONTRACTOR

DENEUVE CONSTRUCTION
2344 Spruce Street
Boulder, CO 80302
T: 303.444.6633

CIVIL ENGINEER

LANDMARK ENGINEERING
141 9th Street, PO Box 774943
Steamboat Springs, CO 80477
T.970.871.9494

LANDSCAPE ARCHITECT

STRUCTURAL ENGINEER

KL&A ENGINEERS & BUILDERS
1717 Washington Ave.
Golden, CO 80401
T. 303.384.9910

© 2026 KL&A, INC

M.E.P. & F.P. ENGINEERS

BOULDER ENGINEERING
1717 15th Street
Boulder, CO 80302
T. 303.444.6038

INTERIOR DESIGNER:

JOHNSON NATHAN STROHE
1600 Wynkoop St., Suite 100
Denver, CO 80202
T.303.892.7062

PROJECT LOCATION

STEAMBOAT BASECAMP II

STEAMBOAT BASECAMP, LOT 2
STEAMBOAT SPRINGS, CO 80487

DRAWING TITLE

ENLARGED PLANS - STAIR B

SEAL

DATE: 03/13/26
DRAWN BY: CGC
CHECKED BY: PMK
PROJECT NO:

DRAWING NO:

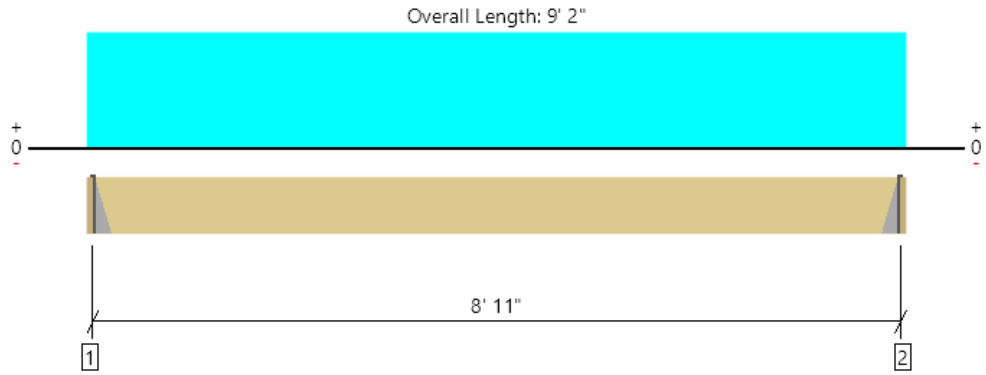
S0202

COPYRIGHT 2019

Typical Stair			
Member Name	Results	Current Solution	Comments
LANDING JOIST	Passed	1 piece(s) 2 x 10 DF No.2 @ 16" OC	
MID STRINGER	Passed	1 piece(s) 1 3/4" x 7 1/4" 2.0E Microllam® LVL	
EDGE STRINGER	Passed	1 piece(s) 1 3/4" x 7 1/4" 2.0E Microllam® LVL	
LANDING HDR	Passed	2 piece(s) 1 3/4" x 11 7/8" 2.0E Microllam® LVL	

ForteWEB Software Operator	Job Notes
Pelle Oberg KL&A Inc. (303) 384-9910 poberg@klaa.com	

Typical Stair, LANDING JOIST
1 piece(s) 2 x 10 DF No.2 @ 16" OC



All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	826 @ 1 1/2"	1406 (1.50")	Passed (59%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	683 @ 10 3/4"	1665	Passed (41%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	1842 @ 4' 7"	2029	Passed (91%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.120 @ 4' 7"	0.223	Passed (L/893)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.167 @ 4' 7"	0.446	Passed (L/643)	--	1.0 D + 1.0 L (All Spans)
TJ-Pro™ Rating	N/A	N/A	N/A	--	N/A

System : Floor
Member Type : Joist
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- A 15% increase in the moment capacity has been added to account for repetitive member usage.
- Applicable calculations are based on NDS.
- No composite action between deck and joist was considered in analysis.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Total	
1 - Hanger on 9 1/4" DF ledgerOnMasonry	1.50"	Hanger[1]	1.50"	238	611	849	See note [1]
2 - Hanger on 9 1/4" DF ledgerOnMasonry	1.50"	Hanger[1]	1.50"	238	611	849	See note [1]

- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- [1] See Connector grid below for additional information and/or requirements.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	4' 5" o/c	
Bottom Edge (Lu)	8' 11" o/c	

•Maximum allowable bracing intervals based on applied load.

Connector: Simpson Strong-Tie						
Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
1 - Top Mount Hanger	Connector not found	N/A	N/A	N/A	N/A	
2 - Top Mount Hanger	Connector not found	N/A	N/A	N/A	N/A	

- Refer to manufacturer notes and instructions for proper installation and use of all connectors.

Vertical Load	Location (Side)	Spacing	Dead (0.90)	Floor Live (1.00)	Comments
1 - Uniform (PSF)	0 to 9' 2"	16"	39.0	100.0	Default Load

Weyerhaeuser Notes

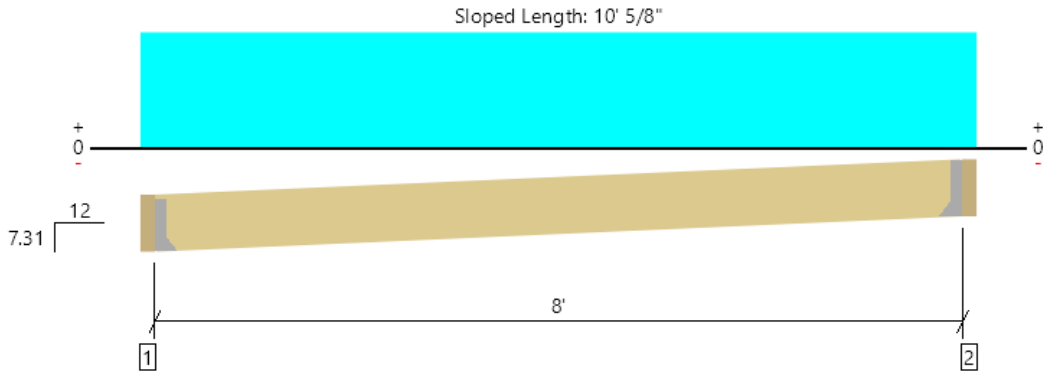
Weyerhaeuser warrants that the sizing of its products will be in accordance with Weyerhaeuser product design criteria and published design values. Weyerhaeuser expressly disclaims any other warranties related to the software. Use of this software is not intended to circumvent the need for a design professional as determined by the authority having jurisdiction. The designer of record, builder or framer is responsible to assure that this calculation is compatible with the overall project. Accessories (Rim Board, Blocking Panels and Squash Blocks) are not designed by this software. Products manufactured at Weyerhaeuser facilities are third-party certified to sustainable forestry standards. Weyerhaeuser Engineered Lumber Products have been evaluated by ICC-ES under evaluation reports ESR-1153 and ESR-1387 and/or tested in accordance with applicable ASTM standards. For current code evaluation reports, Weyerhaeuser product literature and installation details refer to www.weyerhaeuser.com/woodproducts/document-library.

The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Pelle Oberg KL&A Inc. (303) 384-9910 poberg@klaa.com	601-5

Weyerhaeuser

Typical Stair, MID STRINGER
1 piece(s) 1 3/4" x 7 1/4" 2.0E Microllam® LVL



All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Member Length : 9' 8 13/16"

System : Roof
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 7.31/12

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1299 @ 3 1/2"	1969 (1.50")	Passed (66%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	1132 @ 9 11/16"	2411	Passed (47%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	2598 @ 4' 3 1/2"	3557	Passed (73%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.266 @ 4' 3 1/2"	0.312	Passed (L/422)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.393 @ 4' 3 1/2"	0.468	Passed (L/286)	--	1.0 D + 1.0 L (All Spans)

- Deflection criteria: LL (L/360) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Total	
1 - Hanger on 7 1/4" LVL beam	3.50"	Hanger[1]	1.50"	444	944	1388	See note [1]
2 - Hanger on 7 1/4" LVL beam	3.50"	Hanger[1]	1.50"	444	944	1388	See note [1]

- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- [1] See Connector grid below for additional information and/or requirements.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	9' 4" o/c	
Bottom Edge (Lu)	9' 4" o/c	

•Maximum allowable bracing intervals based on applied load.

Connector: Simpson Strong-Tie						
Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
1 - Face Mount Hanger	HU1.81/5X SLU31	2.50"	N/A	16-10dx1.5	6-10dx1.5	
2 - Face Mount Hanger	HU1.81/5X SLD31	2.50"	N/A	16-10dx1.5	6-10dx1.5	

- Refer to manufacturer notes and instructions for proper installation and use of all connectors.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Comments
0 - Self Weight (PLF)	3 1/2" to 8' 3 1/2"	N/A	3.7	--	
1 - Uniform (PSF)	0 to 8' 7"	2' 2 3/8"	39.0	100.0	Default Load

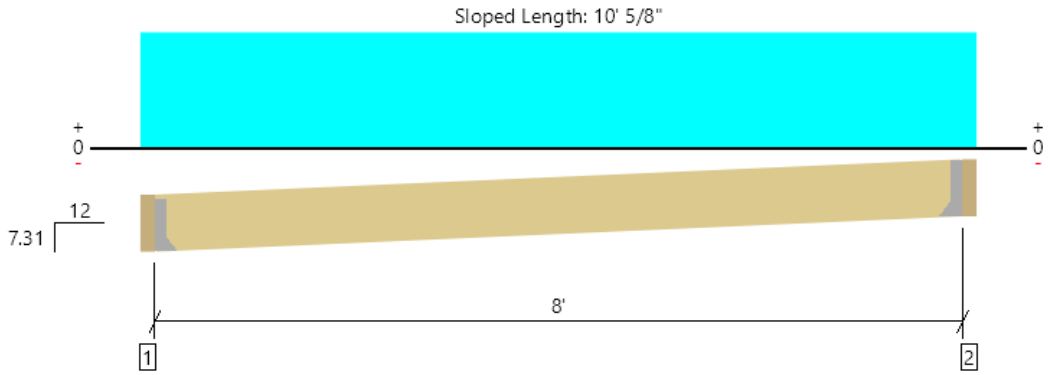
Weyerhaeuser Notes

Weyerhaeuser warrants that the sizing of its products will be in accordance with Weyerhaeuser product design criteria and published design values. Weyerhaeuser expressly disclaims any other warranties related to the software. Use of this software is not intended to circumvent the need for a design professional as determined by the authority having jurisdiction. The designer of record, builder or framer is responsible to assure that this calculation is compatible with the overall project. Accessories (Rim Board, Blocking Panels and Squash Blocks) are not designed by this software. Products manufactured at Weyerhaeuser facilities are third-party certified to sustainable forestry standards. Weyerhaeuser Engineered Lumber Products have been evaluated by ICC-ES under evaluation reports ESR-1153 and ESR-1387 and/or tested in accordance with applicable ASTM standards. For current code evaluation reports, Weyerhaeuser product literature and installation details refer to www.weyerhaeuser.com/woodproducts/document-library.

The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

Typical Stair, EDGE STRINGER

1 piece(s) 1 3/4" x 7 1/4" 2.0E Microllam® LVL



All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Member Length : 9' 8 13/16"

System : Roof
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 7.31/12

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	649 @ 3 1/2"	1969 (1.50")	Passed (33%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	565 @ 9 11/16"	2411	Passed (23%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	1297 @ 4' 3 1/2"	3557	Passed (36%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.131 @ 4' 3 1/2"	0.312	Passed (L/858)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.196 @ 4' 3 1/2"	0.468	Passed (L/573)	--	1.0 D + 1.0 L (All Spans)

- Deflection criteria: LL (L/360) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Total	
1 - Hanger on 7 1/4" LVL beam	3.50"	Hanger[1]	1.50"	228	465	693	See note [1]
2 - Hanger on 7 1/4" LVL beam	3.50"	Hanger[1]	1.50"	228	465	693	See note [1]

- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- [1] See Connector grid below for additional information and/or requirements.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	9' 4" o/c	
Bottom Edge (Lu)	9' 4" o/c	

•Maximum allowable bracing intervals based on applied load.

Connector: Simpson Strong-Tie						
Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
1 - Face Mount Hanger	HU1.81/5X SLU31	2.50"	N/A	12-10dx1.5	4-10dx1.5	
2 - Face Mount Hanger	HU1.81/5X SLD31	2.50"	N/A	12-10dx1.5	4-10dx1.5	

- Refer to manufacturer notes and instructions for proper installation and use of all connectors.

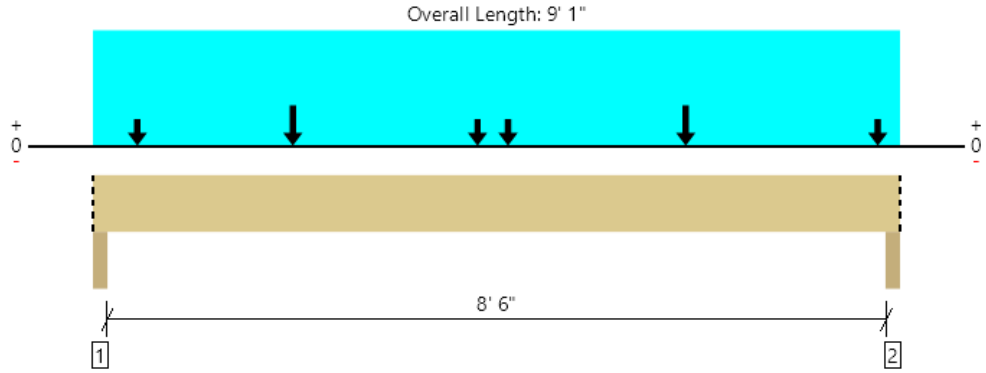
Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Comments
0 - Self Weight (PLF)	3 1/2" to 8' 3 1/2"	N/A	3.7	--	
1 - Uniform (PSF)	0 to 8' 7"	1' 1"	39.0	100.0	Default Load

Weyerhaeuser Notes

Weyerhaeuser warrants that the sizing of its products will be in accordance with Weyerhaeuser product design criteria and published design values. Weyerhaeuser expressly disclaims any other warranties related to the software. Use of this software is not intended to circumvent the need for a design professional as determined by the authority having jurisdiction. The designer of record, builder or framer is responsible to assure that this calculation is compatible with the overall project. Accessories (Rim Board, Blocking Panels and Squash Blocks) are not designed by this software. Products manufactured at Weyerhaeuser facilities are third-party certified to sustainable forestry standards. Weyerhaeuser Engineered Lumber Products have been evaluated by ICC-ES under evaluation reports ESR-1153 and ESR-1387 and/or tested in accordance with applicable ASTM standards. For current code evaluation reports, Weyerhaeuser product literature and installation details refer to www.weyerhaeuser.com/woodproducts/document-library.

The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

Typical Stair, LANDING HDR
2 piece(s) 1 3/4" x 11 7/8" 2.0E Microllam® LVL



All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	3256 @ 2"	9188 (3.50")	Passed (35%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	2574 @ 1' 3 3/8"	7897	Passed (33%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	7035 @ 4' 7 3/16"	17848	Passed (39%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.078 @ 4' 6 5/16"	0.219	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.116 @ 4' 6 5/16"	0.438	Passed (L/902)	--	1.0 D + 1.0 L (All Spans)

System : Floor
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Total	
1 - Ledger - LVL	3.50"	3.50"	1.50"	1075	2181	3256	Blocking
2 - Ledger - LVL	3.50"	3.50"	1.50"	1071	2173	3244	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	9' 1" o/c	
Bottom Edge (Lu)	9' 1" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Comments
0 - Self Weight (PLF)	0 to 9' 1"	N/A	12.1	--	
1 - Uniform (PSF)	0 to 9' 1" (Front)	8"	39.0	100.0	Default Load
2 - Point (lb)	6" (Front)	N/A	228	465	Linked from: EDGE STRINGER, Support 1
3 - Point (lb)	2' 3" (Front)	N/A	444	944	Linked from: MID STRINGER, Support 1
4 - Point (lb)	4' 3 15/16" (Front)	N/A	228	465	Linked from: EDGE STRINGER, Support 1
5 - Point (lb)	4' 8 1/16" (Front)	N/A	228	465	Linked from: EDGE STRINGER, Support 1
6 - Point (lb)	6' 8 1/16" (Front)	N/A	444	944	Linked from: MID STRINGER, Support 1
7 - Point (lb)	8' 10" (Front)	N/A	228	465	Linked from: EDGE STRINGER, Support 1

Weyerhaeuser Notes

Weyerhaeuser warrants that the sizing of its products will be in accordance with Weyerhaeuser product design criteria and published design values. Weyerhaeuser expressly disclaims any other warranties related to the software. Use of this software is not intended to circumvent the need for a design professional as determined by the authority having jurisdiction. The designer of record, builder or framer is responsible to assure that this calculation is compatible with the overall project. Accessories (Rim Board, Blocking Panels and Squash Blocks) are not designed by this software. Products manufactured at Weyerhaeuser facilities are third-party certified to sustainable forestry standards. Weyerhaeuser Engineered Lumber Products have been evaluated by ICC-ES under evaluation reports ESR-1153 and ESR-1387 and/or tested in accordance with applicable ASTM standards. For current code evaluation reports, Weyerhaeuser product literature and installation details refer to www.weyerhaeuser.com/woodproducts/document-library.

The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

(https://www.strongtie.com/literature-and-links-canada)
USA / Canada (https://www.strongtie.com/literature-and-links-canada) | Change Location...

Search strongtie.com

(https://www.strongtie.com)

Joist Hanger Selector

www.strongtie.com

USA - Allowable Stress Design

Web App Inputs

Hanger Type: Face Mount
Header Member Information:
Type: Laminated Veneer Lumber
Species: DF/SP (Douglas Fir or Southern Pine)
Width: 1 3/4" x
Depth: 16"
Member Type: Double
Hanger Options:
Skewed: No Skew
Sloped: Sloped Up (32)
Fastener Type: All

Joist Member Information:
Type: Laminated Veneer Lumber
Species: DF/SP (Douglas Fir or Southern Pine)
Width: 1 3/4" x
Depth: 7 1/4"
Member Type: Single

Design Information:
Download: 1388
Uplift: 0
Down Load Duration: Floor 100
Uplift Load Duration: Quake/Wind 160

Calculation Results

Model	Width	Height	Bearing	Face Fastener	Joist Fastener	Load	Uplift	Installed Cost
HU1.81/5X SLU32	1 13/16"	5 3/8"	2 1/2"	12-10d Common Nail	4-10dx1 1/2	1525	455	Lowest
HU7X SLU32	1 13/16"	6 11/16"	2 1/2"	12-10d Common Nail	4-10dx1 1/2	1525	455	+1%

Note:
All loads are displayed in units of pounds and based on Allowable Stress Design
Click on the Models above to be taken to the product page for more information, refer to the current Wood Construction Connectors catalog for General Notes (http://www.strongtie.com/productuse/general-notes.asp) and Installation Instructions (http://www.strongtie.com/productuse/installer.html)

Printed February 7, 2022 from https://www2.strongtie.com/webapps/JoistHangerSelector/?source=softwarenav

© 2015 Simpson Strong-Tie Company Inc.

Strong-Drive®
SDWS **TIMBER** Screw with Gypsum Board Interlayer(s)

The Strong-Drive® SDWS Timber screw may be installed with one or two layers of ⅝" gypsum board. This layer of gypsum is to be located between the side member and main member for a standard connection and between the ledger and sheathing of a ledger connection. See the tables below for the required screw lengths and allowable loads for these applications. Loads are derived from assembly testing based on ICC-ES AC233.

SDWS Timber Screw – Douglas Fir-Larch and Southern Pine Lumber Allowable Single Shear Loads with One Layer of ⅝" Gypsum Board

Size (in.)	Model No.	Thread Length (in.)	DF/SP Allowable Shear Loads (lb.) Wood Side Member Thickness (in.)								
			1.5	2.0	2.5	3.0	3.5	4.0	4.5	6.0	8.0
0.22 x 4	SDWS22400DB	2.375	265	—	—	—	—	—	—	—	—
0.22 x 5	SDWS22500DB	2.75	265	265	235	—	—	—	-—	—	—
0.22 x 6	SDWS22600DB	2.75	265	265	265	265	235	—	—	—	—
0.22 x 8	SDWS22800DB	2.75	265	265	265	265	255	255	255	—	—
0.22 x 10	SDWS221000DB	2.75	265	265	265	265	255	255	255	255	—

See notes on following page.

SDWS Timber Screw – Douglas Fir-Larch and Southern Pine Lumber Allowable Single Shear Loads with Two Layers of ⅝" Gypsum Board

Size (in.)	Model No.	Thread Length (in.)	DF/SP Allowable Shear Loads (lb.) Wood Side Member Thickness (in.)								
			1.5	2.0	2.5	3.0	3.5	4.0	4.5	6.0	8.0
0.22 x 4	SDWS22400DB	2.375	—	—	—	—	—	—	—	—	—
0.22 x 5	SDWS22500DB	2.75	265	265	—	—	—	—	—	—	—
0.22 x 6	SDWS22600DB	2.75	265	265	265	265	—	—	—	—	—
0.22 x 8	SDWS22800DB	2.75	265	265	265	265	255	255	255	—	—
0.22 x 10	SDWS221000DB	2.75	265	265	265	265	255	255	255	255	—

See notes on following page.

SDWS Timber Screw – Spruce-Pine-Fir and Hem-Fir Lumber Allowable Single Shear Loads with One Layer of ⅝" Gypsum Board

Size (in.)	Model No.	Thread Length (in.)	SPF/HF Allowable Shear Loads (lb.) Wood Side Member Thickness (in.)								
			1.5	2.0	2.5	3.0	3.5	4.0	4.5	6.0	8.0
0.22 x 4	SDWS22400DB	2.375	250	—	—	—	—	—	—	—	—
0.22 x 5	SDWS22500DB	2.75	260	190	190	—	—	—	—	—	—
0.22 x 6	SDWS22600DB	2.75	260	235	235	235	200	—	—	—	—
0.22 x 8	SDWS22800DB	2.75	260	235	235	235	200	200	180	—	—
0.22 x 10	SDWS221000DB	2.75	260	235	235	235	200	200	180	180	—

See notes on following page.

C-F-2017 ©2017 SIMPSON STRONG-TIE COMPANY INC.

Strong-Drive®
SDWS **TIMBER** Screw with Gypsum Board Interlayer(s) (cont.)

SDWS Timber Screw – Spruce-Pine-Fir and Hem-Fir Lumber
Allowable Single Shear Loads with Two Layers of ⅝" Gypsum Board

Size (in.)	Model No.	Thread Length (in.)	SPF/HF Allowable Shear Loads (lb.)								
			Wood Side Member Thickness (in.)								
			1.5	2.0	2.5	3.0	3.5	4.0	4.5	6.0	8.0
0.22 x 4	SDWS22400DB	2.375	—	—	—	—	—	—	—	—	—
0.22 x 5	SDWS22500DB	2.75	260	190	—	—	—	—	—	—	—
0.22 x 6	SDWS22600DB	2.75	260	235	235	235	—	—	—	—	—
0.22 x 8	SDWS22800DB	2.75	260	235	235	235	200	200	180	—	—
0.22 x 10	SDWS221000DB	2.75	260	235	235	235	200	200	180	180	—

1. All applications are based on full penetration which equals fastener length minus side member thickness.
2. Allowable loads are shown at the wood load duration factor of C_D =1.0. Loads may be increased for load duration per the building code up to a C_D =1.6. Tabulated values must be multiplied by all applicable adjustment factors per the NDS.
3. Minimum fastener spacing requirements: 6" end distance, 1⁷⁄₁₆" edge distance, ⅝" between staggered rows of fasteners, 4" between non-staggered rows of fasteners and 8" between fasteners in a row. Refer to SDWS Spacing Requirements figure on p. 292.
4. For in-service moisture content greater than 19% use C_M = 0.7.
5. Gypsum board must be attached as required per the building code.

C-F-2017 ©2017 SIMPSON STRONG-TIE COMPANY INC.

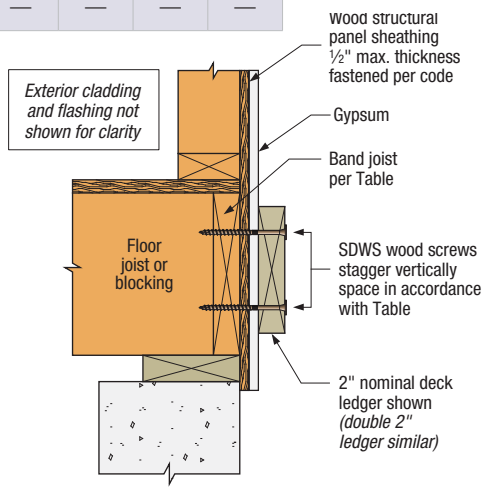
Strong-Drive®

SDWS **TIMBER** Screw with Gypsum Board Interlayer(s) (cont.)

SDWS Timber Screw – 2009, 2012 and 2015 IRC Compliant Spacing for a Sawn Lumber Ledger to Rim Board with One or Two Layers of ⅝" Gypsum Board

Loading Condition	Nominal Ledger Thickness (in.)	Model No.	Rim Board Material and Minimum Size	Maximum Deck Joist Span						
				Up to 6 ft.	Up to 8 ft.	Up to 10 ft.	Up to 12 ft.	Up to 14 ft.	Up to 16 ft.	Up to 18 ft.
				Maximum On-Center Spacing of Fasteners (in.)						
40 psf Live 10 psf Dead	2x	For one layer of gypsum board use: SDWS22400DB For two layers of gypsum board use: SDWS22500DB	1" OSB 1" LVL	13	10	8	6	6	5	4
			1⅛" OSB 1⅝" LVL 1¼" LSL	15	11	9	8	7	6	5
			2x SP, DFL 2x SPF, HF	20	15	12	10	9	8	7
60 psf Live 10 psf Dead	2x	For one layer of gypsum board use: SDWS22400DB For two layers of gypsum board use: SDWS22500DB	1" OSB 1" LVL	9	7	6	5	4	—	—
			1⅛" OSB 1⅝" LVL 1¼" LSL	11	8	7	5	5	4	4
			2x SP, DFL 2x SPF, HF	14	11	9	7	6	5	5
100 psf Live 10 psf Dead	2x	For one layer of gypsum board use: SDWS22400DB For two layers of gypsum board use: SDWS22500DB	1" OSB 1" LVL	6	4	4	—	—	—	—
			1⅛" OSB 1⅝" LVL 1¼" LSL	8	6	5	4	—	—	—
			2x SP, DFL 2x SPF, HF	9	7	5	5	4	—	—
40 psf Live 10 psf Dead	(2) 2x	For one layer of gypsum board use: SDWS22600DB	1" OSB 1" LVL	14	11	9	7	6	5	5
			1⅛" OSB 1⅝" LVL 1¼" LSL	15	11	9	8	7	6	5
			2x SP, DFL 2x SPF, HF	15	11	9	8	7	6	5
60 psf Live 10 psf Dead	(2) 2x	For one layer of gypsum board use: SDWS22600DB	1" OSB 1" LVL	10	8	6	5	5	4	—
			1⅛" OSB 1⅝" LVL 1¼" LSL	11	8	6	5	5	4	4
			2x SP, DFL 2x SPF, HF	11	8	6	5	5	4	4
100 psf Live 10 psf Dead	(2) 2x	For one layer of gypsum board use: SDWS22600DB	1" OSB 1" LVL	7	5	4	—	—	—	—
			1⅛" OSB 1⅝" LVL 1¼" LSL	7	5	4	—	—	—	—
			2x SP, DFL 2x SPF, HF	7	5	4	—	—	—	—

1. Sawn rim board shall be Spruce-Pine-Fir, Hem-Fir, Douglas Fir-Larch, or Southern Pine species. Ledger shall be Hem-Fir, Douglas Fir-Larch, or Southern Pine species.
2. Fastener spacings are based on the lesser of single fastener ICC-ES AC233 testing of the Strong-Drive® SDWS screw with a safety factor of 5.0 or ledger assembly testing based on ICC-ES AC13 with a factor of safety of 3.0. Spacing does NOT include NDS wet service factor adjustment.
3. Multiple ledger plies shall be fastened together per code independent of the SDWS screws.
4. SDWS screw spacing values are equivalent to 2009 IRC Table R502.2.2.1 and 2012/2015 IRC Table R507.2. The table also provides SDWS screw spacing for a wider range of materials commonly used for rim boards, and an alternate loading condition as required by some jurisdictions.
5. Rows of screws shall be vertically offset and evenly staggered. Screws shall be placed 1½" to 2" from the top and bottom of the ledger or rim board with 3" minimum and 6" maximum between rows and spaced per the table. End screws shall be located 6" from the end and at 1½" to 2" from the bottom of the ledger. For screws located at least 2" but less than 6" from the end, use 50% of the load per screw and 50% of the table spacing between the end screw and the adjacent screw, and for screws located between 2" and 4" from the end, predrill using a 5⁄32" drill.
6. The design installation permits a wood structural panel (WSP) interlayer in addition to one or two layers of gypsum board. If present, the WSP shall be a maximum of ½" thick, adjacent to the framing and fastened directly to the framing per the code.
7. Gypsum board must be attached as required per the building code.



Ledger-to-Rim Board Assembly

(Wood-framed lower floor acceptable, concrete wall shown for illustration purposes)

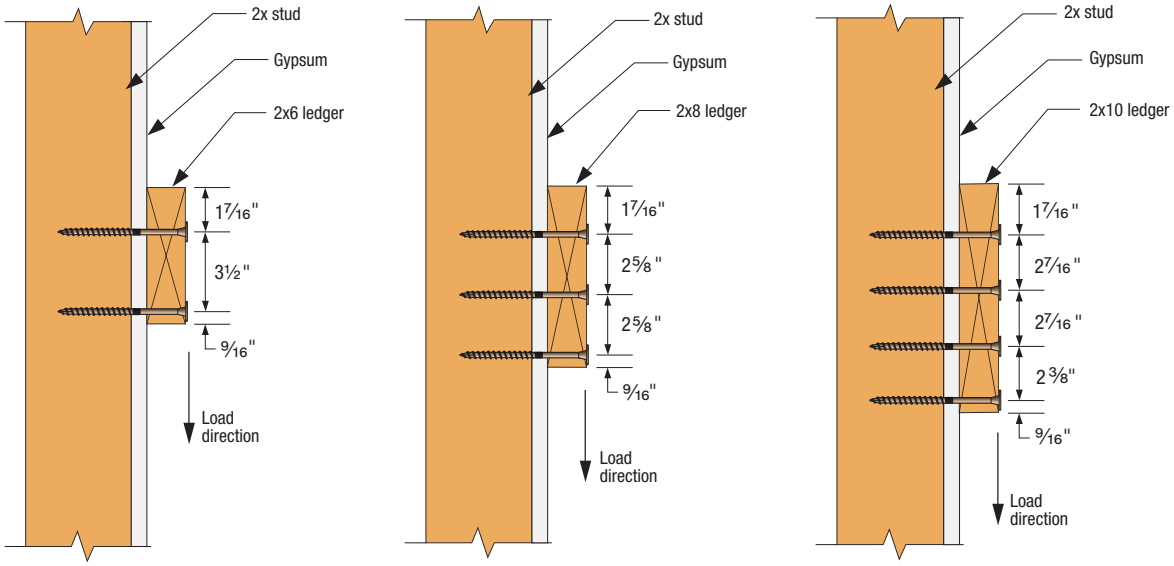
C-F-2017 ©2017 SIMPSON STRONG-TIE COMPANY INC.

Strong-Drive®
SDWS **TIMBER** Screw with Gypsum Board Interlayer(s) (cont.)

SDWS Timber Screw – Allowable Shear Loads for Ledger Attachment to Studs with One or Two Layers of Gypsum Board

Model No.	Length (in.)	Ledger Size	Number of Screws per Stud	Allowable Shear Load (lb.)		
				DF	SPF/HF	SP
SDWS22600DB	6	2x6	2	410	365	510
		2x8	3	580	555	690
		2x10	4	675	675	—

1. Allowable loads shall be limited to parallel-to-grain loaded solid sawn main members (minimum 2" nominal). Wood side members shall be loaded perpendicular to grain.
2. Allowable loads are based on DF, SPF/HF, and SP wood members having a minimum specific gravity of 0.50, 0.42, and 0.55, respectively. Where the side and main members have different specific gravities, the lower values shall be used.
3. Allowable loads are shown at the wood load duration factor of C_D = 1.00. Loads may be increased for load duration as permitted by the building code up to a C_D = 1.60. All adjustment factors shall be applied per the 2012 National Design Specification (NDS). For in-service moisture content greater than 19%, use C_M = 0.70.
4. Fasteners shall be centered in the stud and spaced as shown in the figure. The ledger minimum end distance is 6". The stud minimum end distance is 6" when the load is toward the end and 2½" when the load is away from the end.
5. Screws may be installed with an interlayer of wood structural panel (WSP) between the framing and the gypsum panel(s). When a WSP is present, it shall be a maximum of ½" thick, adjacent to the framing and fastened directly to the framing per code. Minimum screw penetration into the framing of 2½" shall be required; longer screw lengths shall be used to achieve the required penetration.
6. For LRFD values, the reference connection design values shall be adjusted in accordance with the NDS2012, section 10.3, or NDS-15, section 11.3.
7. For 2x10 SP ledgers, use the number of screws and allowable loads of the 2x8 SP ledger.
8. For 2x8 ledgers with two screws, use 2x6 values. For 2x10 ledgers with three screws, use 2x8 values. Spacings and edge distances shown in the figure are minimum dimensions.
9. For loads in the opposite direction from that shown in the figure, use the table values multiplied by: 0.50 for two screw connections, 0.67 for three screw connections, and 0.75 for four screw connections.
10. Gypsum board must be attached as required per the building code.
11. For ledger end distances between 2" and 6", use 50% of load and pre-drill with 5⁄32" drill bit.



Notes to Installer Regarding the Attachment of Ledgers to Studs:

The screws must be installed into the middle of the stud with a tolerance of 3⁄16" either side of center. Various methods can be used to ensure proper placement of the screws in the stud including snapping a chalk line, using a stud finder or prerocking (attaching only a strip of gypsum at the ledger location until the ledger is fastened to the studs). If proper screw placement into the stud cannot be achieved in the field, blocking should be installed between studs to receive and support the ledger screws.

C-F-2017 ©2017 SIMPSON STRONG-TIE COMPANY INC.

BOLT DESIGN VALUES FOR DOUBLE SHEAR three member) CONNECTIONS for sawn lumber with ASTM A36 steel side plates

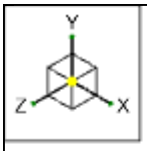
K_θ = 1.15

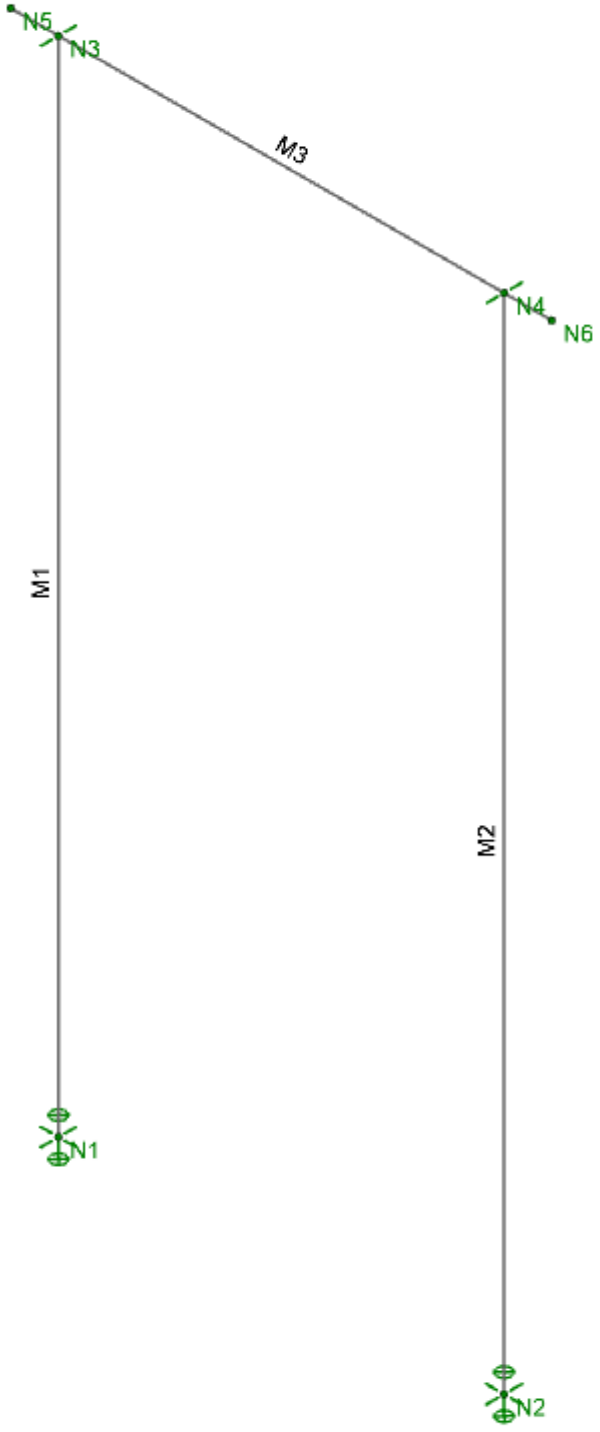
Input: Theta = 53.96

Main Member	Side Member	Bolt Diam	Allowable Bolt Force for Load at angle Theta to main member											Adusted Design Value
tm	ts	D	F par	F perp	Fe theta	Fes	R_e	k_3	I_m	I_s	III_s	IV	**Z**	**Z'**
6	0.25	1/2	5600	3150	3712	58000	0.06	9.00	2421	3152	1100	1390	**1100**	**1067**
6	0.25	5/8	5600	2800	3386	58000	0.06	11.26	2761	3941	1573	2080	**1570**	**1523**
6	0.25	3/4	5600	2600	3192	58000	0.06	13.57	3123	4729	2147	2913	**2150**	**2086**
6	0.25	7/8	5600	2400	2992	58000	0.05	16.11	3415	5517	2793	3845	**2790**	**2706**
6	0.25	1	5600	2250	2838	58000	0.05	18.73	3702	6305	3526	4897	**3530**	**3424**
6	0.3125	1/2	5600	3150	3712	58000	0.06	7.71	2421	3941	1178	1390	**1180**	**1145**
6	0.3125	5/8	5600	2800	3386	58000	0.06	9.45	2761	4926	1650	2080	**1650**	**1601**
6	0.3125	3/4	5600	2600	3192	58000	0.06	11.23	3123	5911	2222	2913	**2220**	**2153**
6	0.3125	7/8	5600	2400	2992	58000	0.05	13.21	3415	6896	2864	3845	**2860**	**2774**
6	0.3125	1	5600	2250	2838	58000	0.05	15.27	3702	7881	3592	4897	**3590**	**3482**
6	0.5	1/2	5600	3150	3712	58000	0.06	6.07	2421	6305	1482	1390	**1390**	**1348**
6	0.5	5/8	5600	2800	3386	58000	0.06	7.05	2761	7881	1969	2080	**1970**	**1911**
6	0.5	3/4	5600	2600	3192	58000	0.06	8.04	3123	9457	2547	2913	**2550**	**2474**
6	0.5	7/8	5600	2400	2992	58000	0.05	9.19	3415	11034	3186	3845	**3190**	**3094**
6	0.5	1	5600	2250	2838	58000	0.05	10.38	3702	12610	3907	4897	**3700**	**3589**
11.5	0.5	1/2	5600	3150	3712	58000	0.06	6.07	4641	6305	1482	1390	**1390**	**1348**
11.5	0.5	5/8	5600	2800	3386	58000	0.06	7.05	5291	7881	1969	2080	**1970**	**1911**
11.5	0.5	3/4	5600	2600	3192	58000	0.06	8.04	5985	9457	2547	2913	**2550**	**2474**
11.5	0.5	7/8	5600	2400	2992	58000	0.05	9.19	6545	11034	3186	3845	**3190**	**3094**
11.5	0.5	1	5600	2250	2838	58000	0.05	10.38	7095	12610	3907	4897	**3910**	**3793**

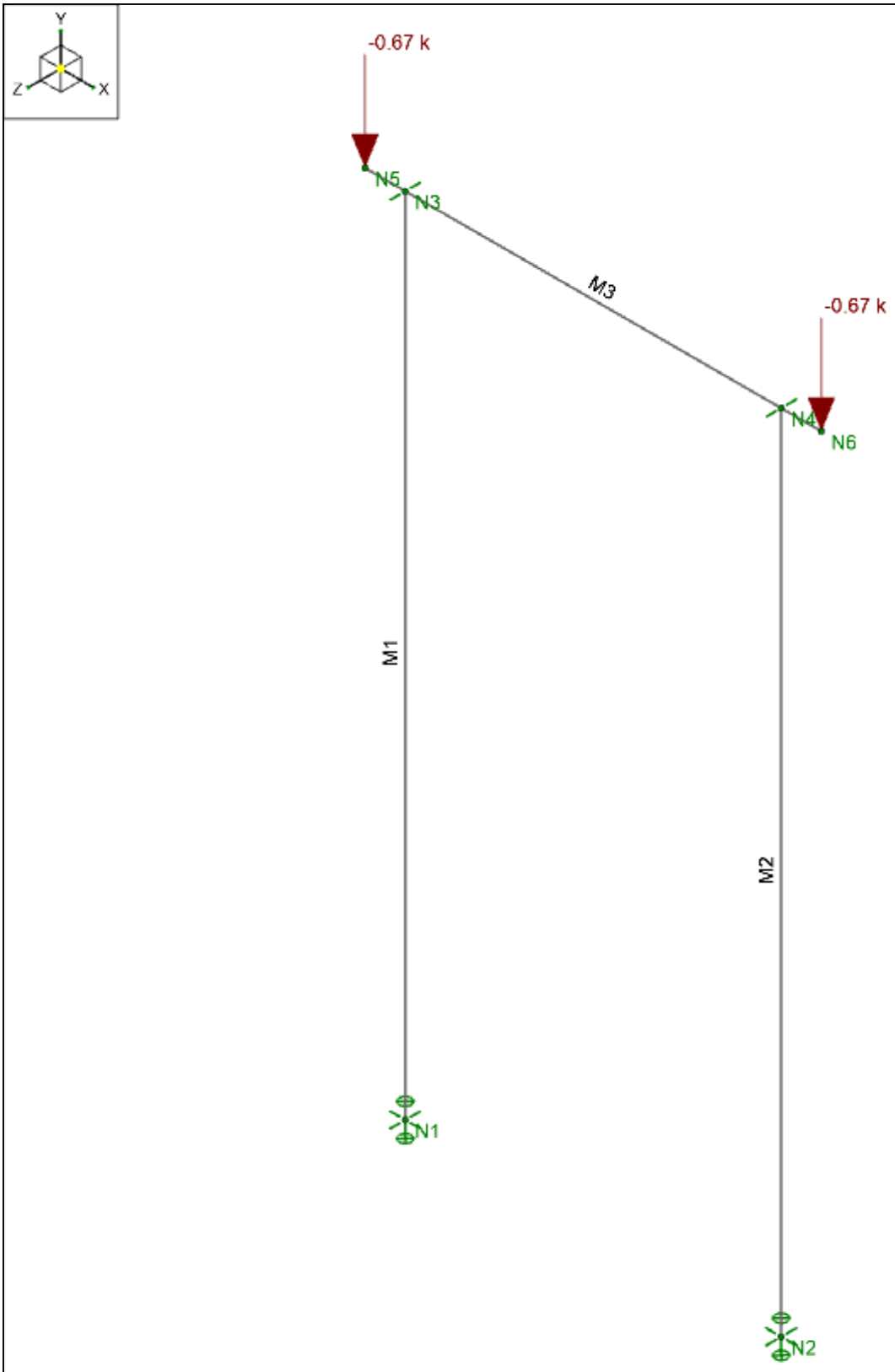
Load Duration Factor	Geometry Factor	Group Action Factor	Total Modification Factor
1	0.97	1.00	**0.970**

602. SHADE STRUCTURE



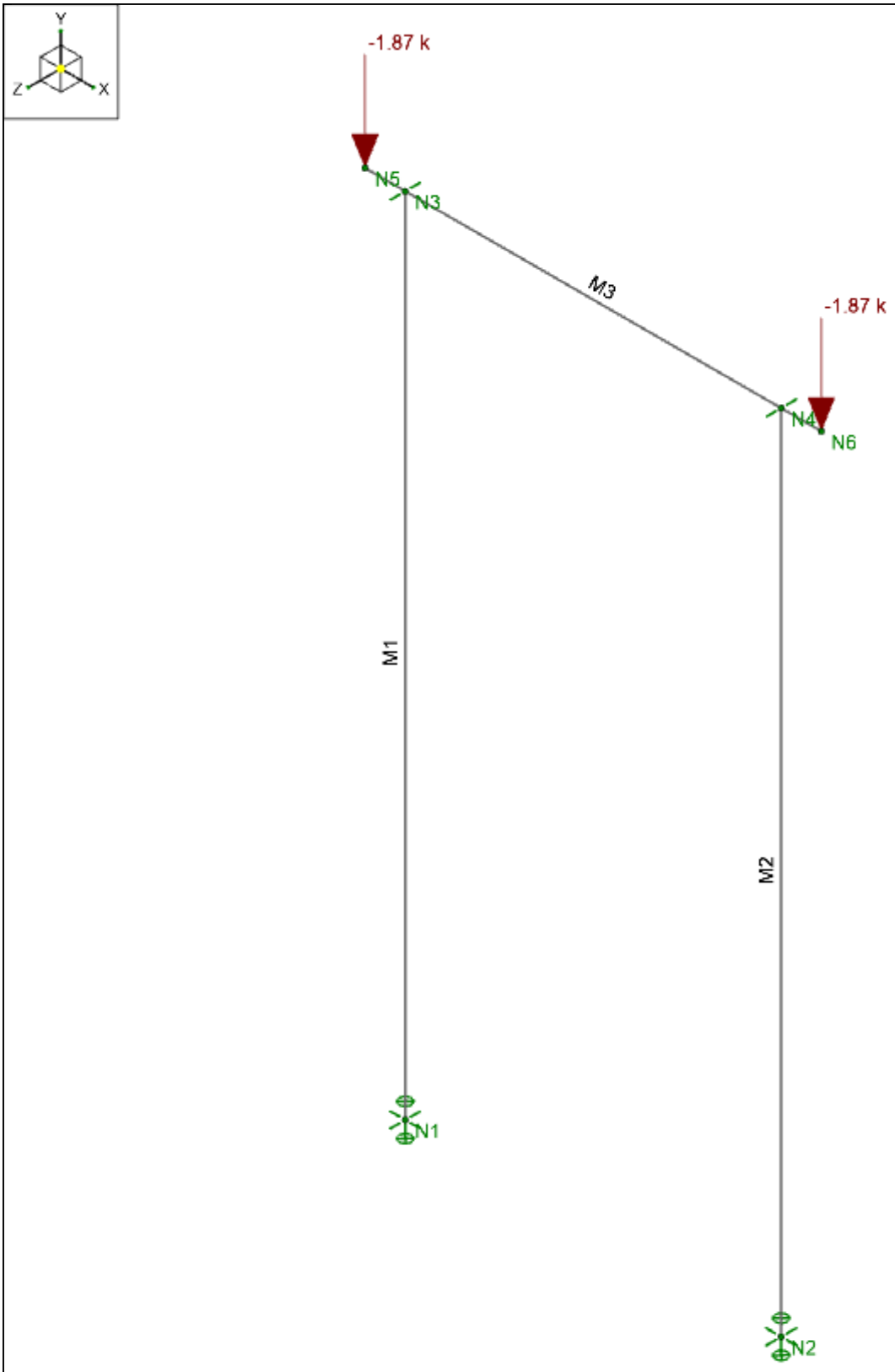


IRISA A NEMETSCHEK COMPANY	KL&A Inc.	Basecamp II - Shade Structure	SK-1
	MYI		Mar 16, 2026 at 08:32 AM
	25336	Member and Node Labels	260226_Level 2 North Cano…



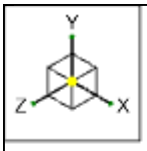
Loads: BLC 1, SDL

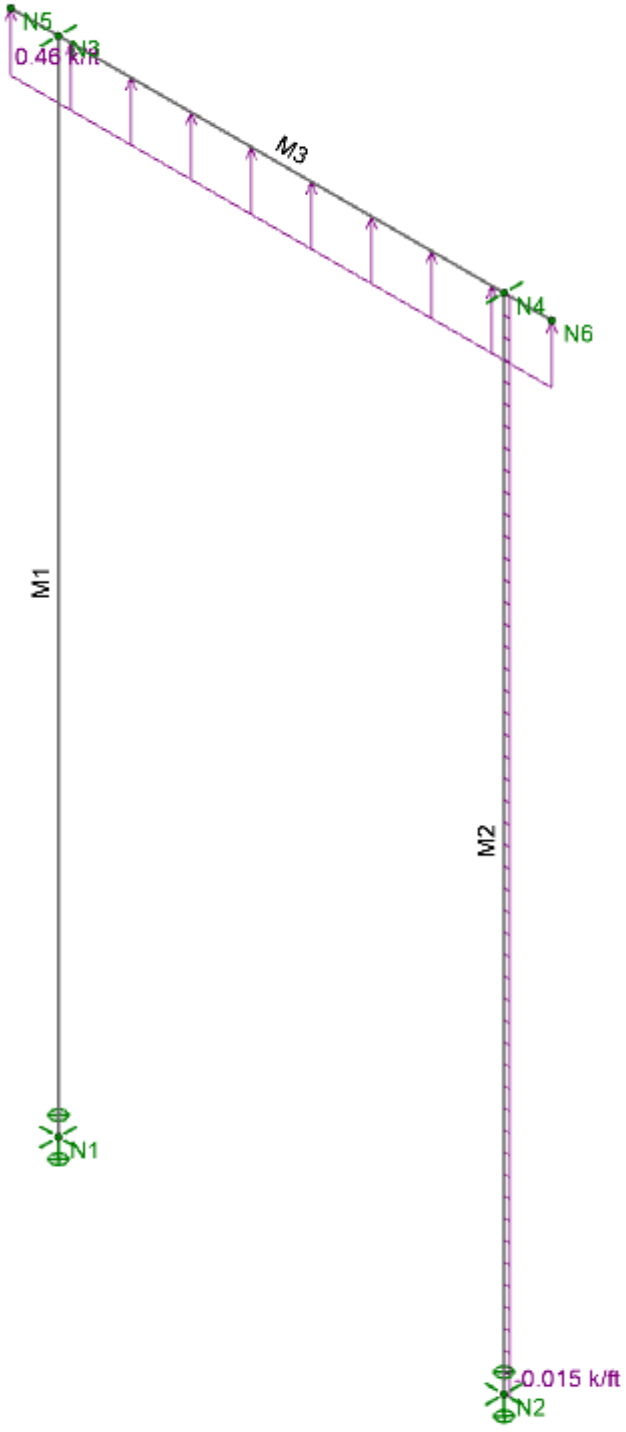
RISA A NEMETSCHEK COMPANY	KL&A Inc.	Basecamp II - Shade Structure	SK-2
	MYI		Mar 16, 2026 at 08:33 AM
	25336	Superimposed Dead Loads	260226_Level 2 North Cano…



Loads: BLC 3, Snow

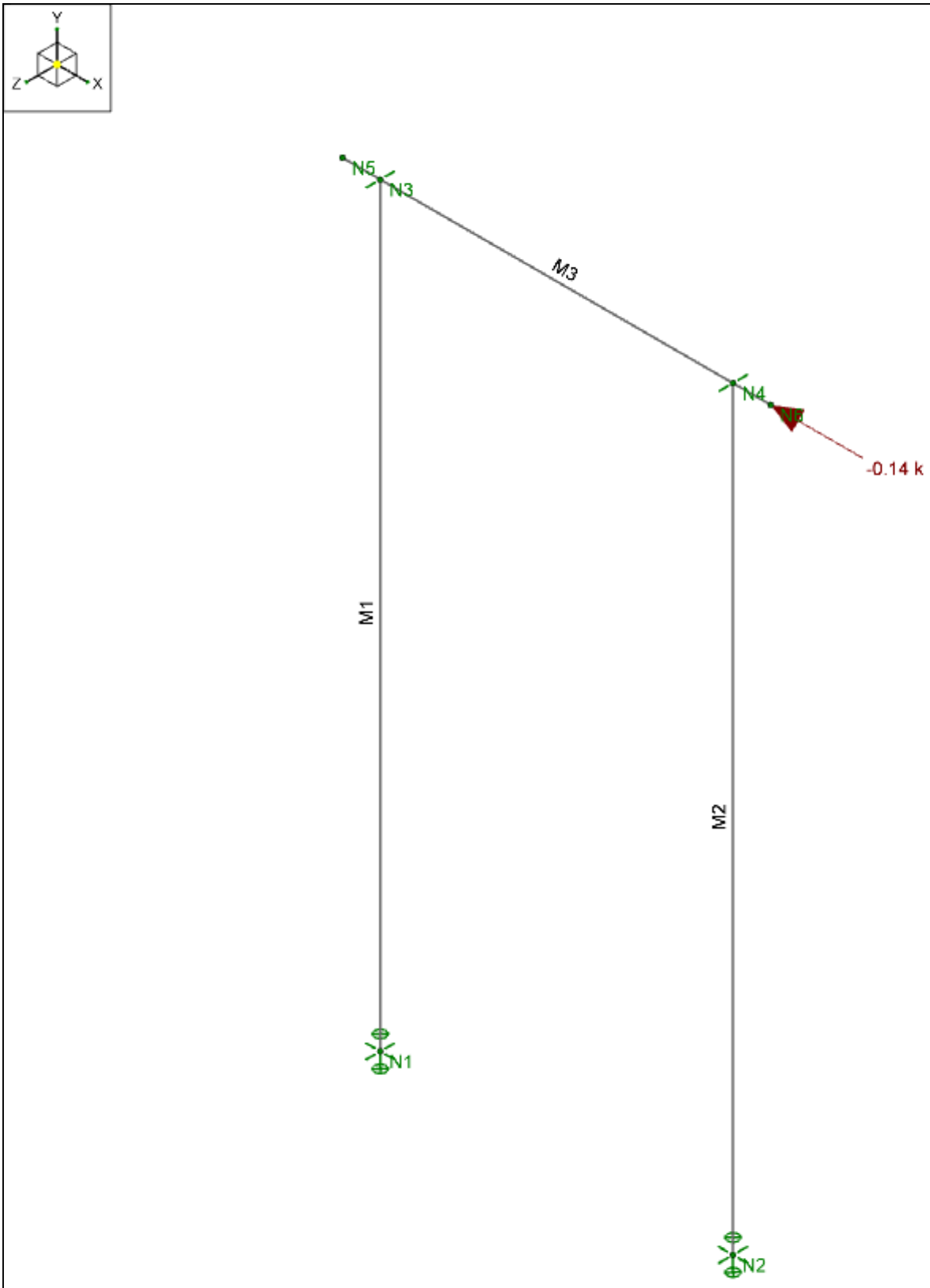
RISA A NEMETSCHEK COMPANY	KL&A Inc.	Basecamp II - Shade Structure	SK-3
	MYI		Mar 16, 2026 at 08:33 AM
	25336	Snow Loads	260226_Level 2 North Cano…





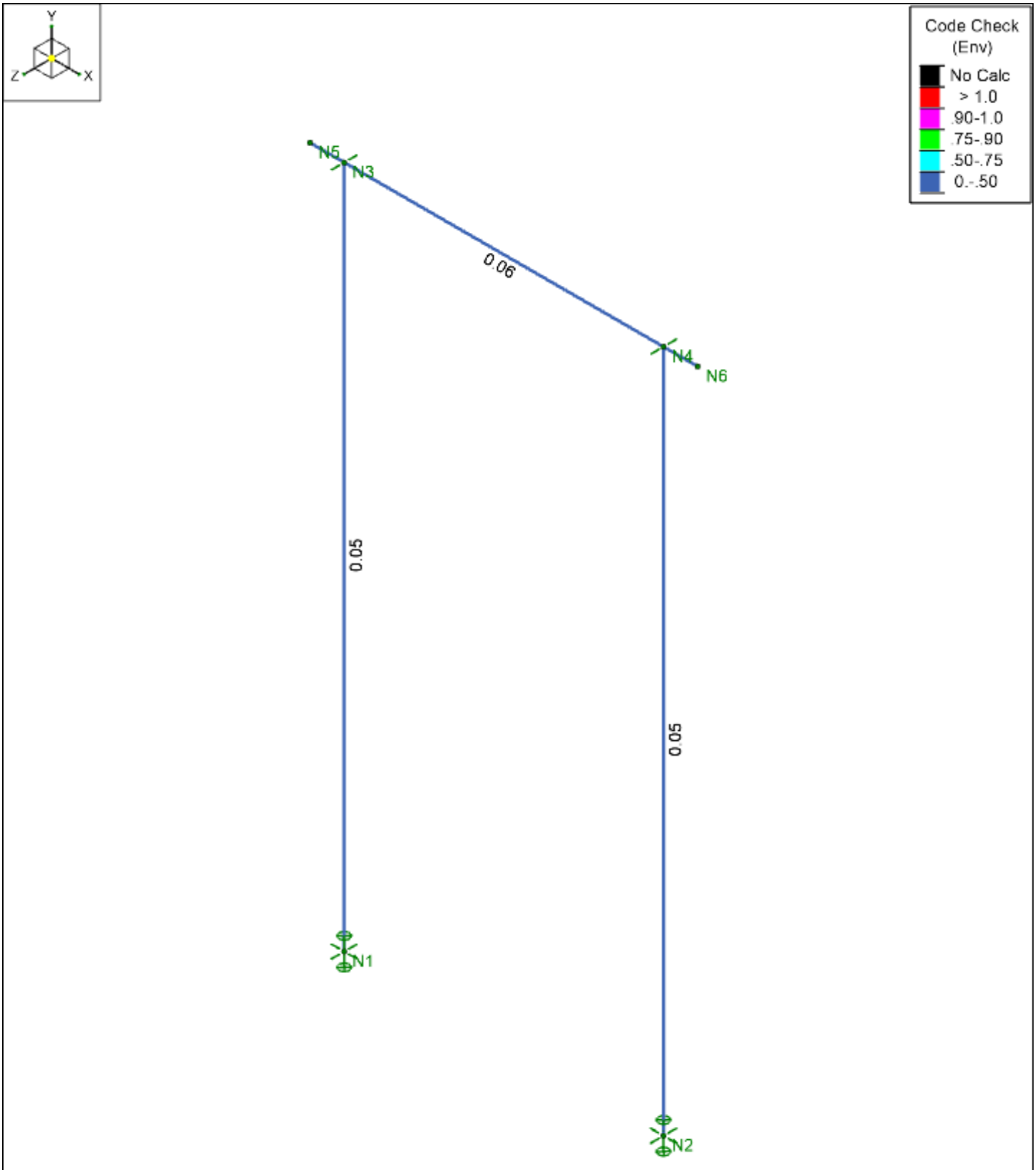
Loads: BLC 4, Wind-X

IRISA A NEMETSCHEK COMPANY	KL&A Inc.	Basecamp II - Shade Structure	SK-4
	MYI		Mar 16, 2026 at 08:34 AM
	25336	Wind Loads	260226_Level 2 North Cano…



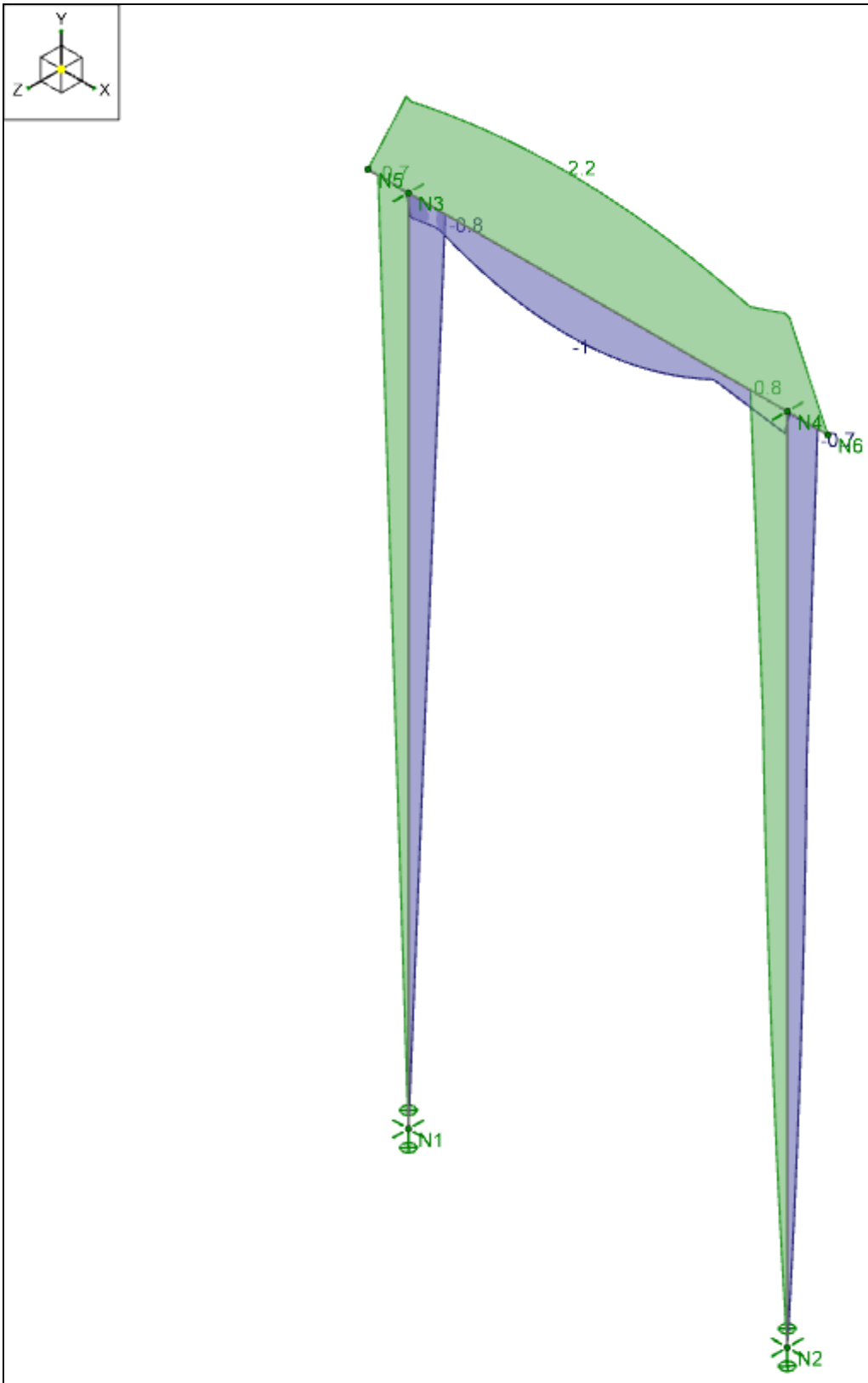
Loads: BLC 6, EQ-X

RISA A NEMETSCHEK COMPANY	KL&A Inc.	Basecamp II - Shade Structure	SK-5
	MYI		Mar 16, 2026 at 08:35 AM
	25336	Seismic Loads	260226_Level 2 North Cano…



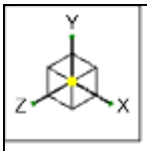
Member Code Checks Displayed (Enveloped)
Envelope Only Solution

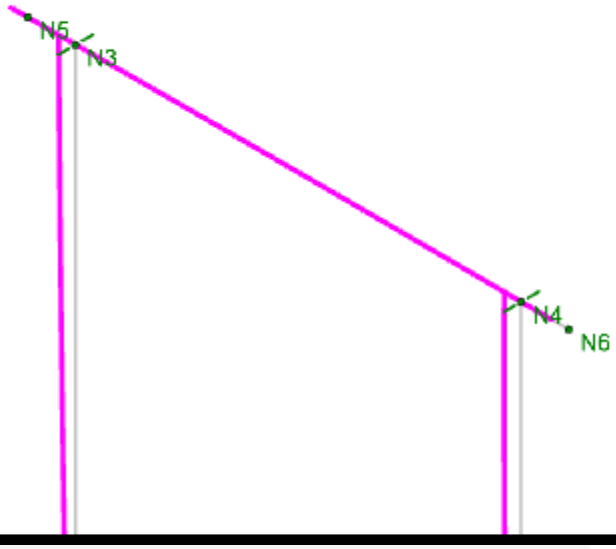
RISA A NEMETSCHEK COMPANY	KL&A Inc.	Basecamp II - Shade Structure	SK-6
	MYI		Mar 16, 2026 at 08:36 AM
	25336	Code Check	260226_Level 2 North Cano…



Envelope Only Solution
Member z Bending Moments (kip-ft) (Enveloped)

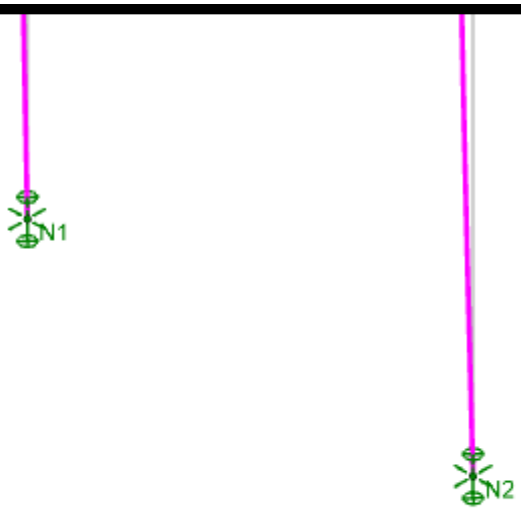
RISA A NEMETSCHEK COMPANY	KL&A Inc.	Basecamp II - Shade Structure	SK-7
	MYI		Mar 16, 2026 at 08:41 AM
	25336	Connection Moments	260226_Level 2 North Cano…





Node Displacements (By Combination)

	LC	Node La...	X [in]	Y [in]	Z [in]	X Rotation [rad]	Y Rotation [rad]	Z Rotation [rad]
1	4	N1	0	0	0	0	0	7.29e-4
2	4	N2	0	0	0	0	0	9.868e-4
3	4	N3	-0.066	0.001	0	0	0	1.88e-4
4	4	N4	-0.066	0.001	0	0	0	-1.193e-4
5	4	N5	-0.066	0	0	0	0	1.871e-4
6	4	N6	-0.066	0	0	0	0	-1.184e-4



Results for LC 4, 0.42W-X

BEAM MOMENT CONNECTION DESIGN CALCULATIONS

$V_u := 0.7kip$ **Beam Size: W16x15**

$M_u := 2.2kip \cdot ft$

$d_{bolt} := \frac{6}{8}in$

$d_{bolt_hole} := d_{bolt} + \frac{1}{16}in = 0.812 \cdot in$ AISC 14 Table J3.3 (p16.1-121)

$d_{beam} := 5.99in$

$b_{f_beam} := 5.99in$

$t_{flange} := 0.260in$

$t_{web} := 0.230in$

$k_{beam} := 0.510in$

$F_{y_beam} := 50ksi$

$F_{u_beam} := 65ksi$

$T_{beam} := 4.5in$

AISC 14 Table J3.4 (p16.1-123)

$d_{edge} := 2in$

$N_{column} := 2$ # of bolt columns for connection plate

$N_{row} := 2$ # of bolt rows for connection plate

$d_{spacing} := 4in$

$d_{plate} := d_{beam} - 1.5in + 0.5in = 4.99 \cdot in$

$w_{plate} := 6.5in$ Connection plate width

$t_{plate} := 0.5in$

$F_{y_plate} := 36ksi$

$F_{u_plate} := 58ksi$

Tension Capacity of Cover Plate Check

$\phi_t := 0.9$

AISC 14 Section D2 (p16.1-26)

$w_{t_pl} := 6.5 \cdot in$

$t_{t_pl} := 0.5in$

$F_{y_t_pl} := 36ksi$

$F_{u_t_pl} := 58ksi$

$N_{ten_row} := 2$

$N_{ten_col} := 2$

$l_{t_pl} := d_{edge} + \left(N_{ten_row} - 1\right) \cdot d_{spacing} = 6 \cdot in$

$E_{pl} := 29000ksi$

$A_{g_plate} := w_{t_pl} \cdot t_{t_pl} = 3.25 \cdot in^2$

$A_{e_plate} := \min\left[.85 \cdot w_{t_pl} \cdot t_{t_pl}, \left(w_{t_pl} - N_{ten_col} \cdot d_{bolt_hole}\right) \cdot t_{t_pl}\right] = 2.438 \cdot in^2$

$\phi P_{n_tension_plate} := \min\left(0.9F_{y_t_pl} \cdot A_{g_plate}, 0.75 \cdot F_{u_t_pl} \cdot A_{e_plate}\right) = 105.3 \cdot kip$

$U_{beam_flange} := 1 - \left(\frac{k_{beam}}{l_{t_pl}}\right) = 0.915$

$\phi P_{n_flange} := \min\left(0.9 \cdot F_{y_beam} \cdot b_{f_beam} \cdot t_{flange}, 0.75 \cdot U_{beam_flange} \cdot F_{u_beam} \cdot b_{f_beam} \cdot t_{flange}\right) = 69.47 \cdot kip$

$\phi P_{n_tension} := \min\left(\phi P_{n_flange}, \phi P_{n_tension_plate}\right) = 69.47 \cdot kip$

$\phi M_n := \phi P_{n_tension} \cdot \left(d_{beam} + t_{t_pl}\right) = 37.572 \cdot kip \cdot ft$

$$Check := \begin{cases} \text{"OK"} & \text{if } \phi M_n > M_u \quad = \text{"OK"} \\ \text{"NG"} & \text{otherwise} \end{cases}$$

$$Capacity := \frac{M_u}{\phi M_n} = 5.855 \cdot \%$$

Compression Capacity of Cover Plate Check

$\phi_c := 0.9$

$K_{pl} := 0.65$ Effective length factor for cover plate (AISC TABLE C-A-7.1)

$b_{f_beam_perp} := 8.01in$ Perpendicular beam flange width

$L_{ub_plate} := b_{f_beam_perp} + 0.5 \cdot in + d_{edge} \cdot 2 = 12.51 \cdot in$

$I_{pl} := \frac{w_{t_pl} \cdot t_{t_pl}^{3}}{12} = 0.068 \cdot in^4$

$r_{pl} := \sqrt{\frac{I_{pl}}{A_{g_plate}}} = 0.144 \cdot in$

$ESL := \frac{K_{pl} \cdot L_{ub_plate}}{r_{pl}} = 56.337$ Effective Slenderness ratio of plate

$F_{e_pl} := \frac{\pi^2 \cdot E_{pl}}{ESL^2} = 90.181 \cdot ksi$

$F_{cr} := \text{if}\left[ESL \le 4.71 \cdot \sqrt{\frac{E_{pl}}{F_{y_t_pl}}}, \left[0.658^{\left(\frac{F_{y_t_pl}}{F_{e_pl}}\right)}\right] \cdot F_{y_t_pl}, 0.877 \cdot F_{e_pl} \right] = 30.461 \cdot ksi$ Critical buckling stress (AISC E3-2 & E3-3)

$\phi P_{n_compression} := \phi_c \cdot F_{cr} \cdot A_{g_plate} = 89.097 \cdot kip$

$\phi M_n := \phi P_{n_compression} \cdot \left(d_{beam} + t_{t_pl}\right) = 48.187 \cdot kip \cdot ft$

$Check := \begin{cases} \text{"OK"} & \text{if } \phi M_n > M_u \\ \text{"NG"} & \text{otherwise} \end{cases} = \text{"OK"}$

$Capacity := \frac{M_u}{\phi M_n} = 4.566 \cdot \%$

Bolt Shear Capacity of Top Plate Check

$\phi R_{n_bolt} := 17.9kip$ AISC 14 Table 7-1 (p7-22)

$\phi R_n := N_{ten_col} \cdot N_{ten_row} \cdot \phi R_{n_bolt} = 71.6 \cdot kip$ AISC 14 Equation J3-4 (p16.1-126)

$R_u := \frac{M_u}{d_{beam}} = 4.407 \cdot kip$

$Check := \begin{cases} \text{"OK"} & \text{if } \phi R_n > R_u \\ \text{"NG"} & \text{otherwise} \end{cases} = \text{"OK"}$

$Capacity := \frac{R_u}{\phi R_n} = 6.156 \cdot \%$

Bolt Bearing Capacity of Top Plate Check

$\phi_{b_brg} := 0.75$ AISC 14 Section J3.10 (p16.1-127)

$l_{c_plate} := \min(d_{edge}, d_{spacing}) = 2 \cdot in$

$l_{c_fl} := \min(d_{spacing}, d_{edge}) = 2 \cdot in$ lowest lc scenario for the beam bearing

AISC 14 Equation J3-6a (p16.1-127)

$\phi R_{n_t_pl} := N_{ten_col} \cdot N_{ten_row} \phi_{b_brg} \cdot \min(1.2 \cdot l_{c_plate} \cdot t_{t_pl} \cdot F_{u_t_pl}, 2.4 \cdot d_{bolt} \cdot t_{t_pl} \cdot F_{u_t_pl}) = 156.6 \cdot kip$

$\phi R_{n_flange} := N_{ten_col} \cdot N_{ten_row} \cdot \phi_{b_brg} \cdot \min(1.2 \cdot l_{c_fl} \cdot t_{flange} \cdot F_{u_beam}, 2.4 \cdot d_{bolt} \cdot t_{flange} \cdot F_{u_beam}) = 91.26 \cdot kip$

$\phi R_n := \min(\phi R_{n_t_pl}, \phi R_{n_flange}) = 91.26 \cdot kip$

$Check := \begin{cases} \text{"OK"} & \text{if } \phi R_n > \phi P_{n_tension} \\ \text{"NG"} & \text{otherwise} \end{cases} = \text{"OK"}$

$Capacity := \frac{\phi P_{n_tension}}{\phi R_n} = 76.123 \cdot \%$

Block Shear Capacity of Top & Bottom Plate Check

$\phi_{block_shear} := 0.75$

$l_{nt} := d_{edge} - \frac{d_{bolt_hole}}{2} = 1.594 \cdot in$

$A_{nt} := l_{nt} \cdot t_{t_pl} = 0.797 \cdot in^2$

$l_{gv} := \left(N_{ten_row} - 1\right) \cdot d_{spacing} + d_{edge} = 6 \cdot in$

$A_{gv} := l_{gv} \cdot t_{t_pl} = 3 \cdot in^2$

$l_{nv} := l_{gv} - \left(N_{ten_row} - 0.5\right) \cdot d_{bolt_hole} = 4.781 \cdot in$

$A_{nv} := l_{nv} \cdot t_{plate} = 2.391 \cdot in^2$

$U_{bs} := 1$

AISC 14 Equation J4-5 (p16.1-129)

$\phi R_n := N_{ten_col} \cdot \min\left(0.6 \cdot F_{u_t_pl} \cdot A_{nv} + U_{bs} \cdot F_{u_t_pl} \cdot A_{nt}, 0.6 \cdot F_{y_t_pl} \cdot A_{gv} + U_{bs} \cdot F_{u_t_pl} \cdot A_{nt}\right) = 222.037 \cdot kip$

$Check := \begin{cases} \text{"OK"} & \text{if } \phi R_n > \phi P_{n_tension} \\ \text{"NG"} & \text{otherwise} \end{cases} = \text{"OK"}$

$Capacity := \frac{\phi P_{n_tension}}{\phi R_n} = 31.287 \cdot \%$

Block Shear Capacity of Top Flange Check

$\phi_{block_shear} := 0.75$

$l_{nt} := d_{edge} - \frac{d_{bolt_hole}}{2} = 1.594 \cdot in$

$A_{nt} := l_{nt} \cdot t_{flange} = 0.414 \cdot in^2$

$l_{gv} := \left(N_{ten_row} - 1\right) \cdot d_{spacing} + d_{edge} = 6 \cdot in$

$A_{gv} := l_{gv} \cdot t_{flange} = 1.56 \cdot in^2$

$l_{nv} := l_{gv} - \left(N_{ten_row} - 0.5\right) \cdot d_{bolt_hole} = 4.781 \cdot in$

$A_{nv} := l_{nv} \cdot t_{flange} = 1.243 \cdot in^2$

$U_{bs} := 1$

AISC 14 Equation J4-5 (p16.1-129)

$\phi R_n := \min\left(0.6 \cdot F_{u_beam} \cdot A_{nv} + U_{bs} \cdot F_{u_beam} \cdot A_{nt}, 0.6 \cdot F_{y_beam} \cdot A_{gv} + U_{bs} \cdot F_{u_beam} \cdot A_{nt}\right) = 73.734 \cdot kip$

$Check := \begin{cases} \text{"OK"} & \text{if } \phi R_n > \phi P_{n_tension} \\ \text{"NG"} & \text{otherwise} \end{cases} = \text{"OK"}$

$Capacity := \frac{\phi P_{n_tension}}{\phi R_n} = 94.216 \cdot \%$

KL&A Engineers & Builders

Title | Date | Job No.

Subject | By | Sheet

Welded Connection Design

Project description: Welded Connection Design Check

Weld Size/Strength:

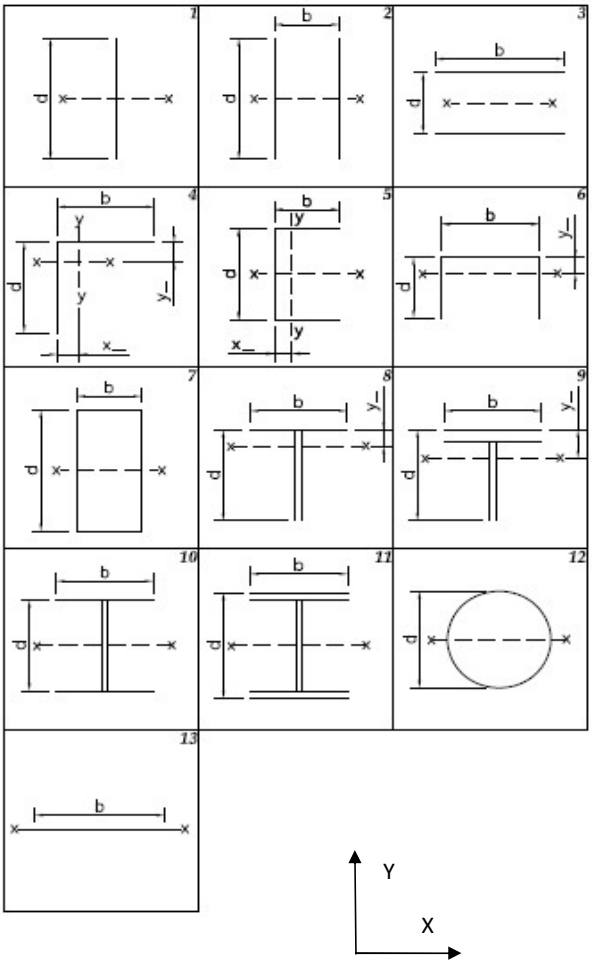
Weld Group	=	2	
Weld Size, D	=	3/16	(ksi)
F_{exx}	=	70	(ksi)
Weld Type	=	FILLET	
load angle effect eqn J2-5 or J2-6b	=	not used	

Weld Dimensions:

b	=	6.00	(in)
d	=	3.00	(in)
X_{bar}	=	0.00	(in)
y_{bar}	=	0.00	(in)

Ultimate Loads:

V_x	(Shear in X)	=	0.70	(k)
V_y	(Shear in Y)	=	0.00	(k)
P_z	(Comp/Tens)	=	0.00	(k)
M_x	(Bending X)	=	0.00	(k-in)
M_y	(Bending Y)	=	26.40	(k-in)
T_z	(Applied Torsion)	=	0.00	(k-in)



Section Properties:

$S_{w, top}$	=	3.00	(in^2)
$S_{w, bot}$	=	3.00	(in^2)
$S_{w, left}$	=	18.00	(in^2)
$S_{w, right}$	=	18.00	(in^2)
J_w	=	58.50	(in^3)
c_{h1}	=	3.00	(in)
c_{v1}	=	1.50	(in)
c_{h2}	=	0.00	(in)
c_{v2}	=	0.00	(in)
A_x	=	0.00	(in)
A_y	=	6.00	(in)
A_w	=	6.00	(in^2)
$c_{h, max}$	=	3.00	(in)
$c_{v, max}$	=	1.50	(in)

KL&A Engineers & Builders

Title	Date	Job No.
Subject	By	Sheet

Welded Connection Design

Weld Forces:

F_{vx}	(normal)	=	V_x/A_w	=	0.12	(k/in)	(Shear)
F_{vy}	(shear)	=	V_y/A_w	=	0.00	(k/in)	(Shear)
F_{bxz}	(normal)	=	$M_x/[\min S_{w,\,top} / S_{w,\,bot}]$	=	0.00	(k/in)	(Bending)
F_{byz}	(normal)	=	$M_y/[\min S_{w,\,left} / S_{w,\,right}]$	=	1.47	(k/in)	(Bending)
F_{pz}	(normal)	=	P_z/A_w	=	0.00	(k/in)	(Tension/ Compression)
F_{t1z}	(shear)	=	$T_z*C_{h,\,max}/J_w$	=	0.00	(k/in)	(Torsion)

Acting Weld Force:

$F_{r,\,act}$		=	sqrt[$\Sigma F_x^2+\Sigma F_y^2+\Sigma F_z^2$]	=	1.47	k/in	(Acting)

Weld Capacity:

load angle factor		=	1.0+0.50sin^1.5(θ)	=	1.00		(J2-6b)		
load length adjustment		=	β=1.2-0.002(l/w)	=	1.00		(J2-1)		
ϕR_n		=	$0.6*F_{exx}$*sqrt(2)/2*D	=	4.18	(k/in)	(AISC, 8-1)	ϕ =	0.75
ϕR_n adjusted		=	ΦRn*adjustment factors	=	4.18	(k/in)			

RESULTS:

Weld Demand/Capacity Ratio	=	$F_{r,\,act}/\phi R_n$	=	0.352	OK	

PROVIDE 3/16 INCH DOUBLE SIDED FILLET WELD

Project Title: Steamboad Basecamp Phase II
Engineer:
Project ID: 25336
Project Descr:

Printed: 16 MAR 2026, 8:51AM

General Footing

Project File: 25336_SBBC-II.ec6

LIC# : KW-06017163, Build:20.25.02.26 KL&A, INC. (c) ENERCALC, LLC 1982-2026

DESCRIPTION: Shade Structure Foundation

Code References

Calculations per ACI 318-19, IBC 2021
Load Combinations Used : IBC 2021

General Information

Material Properties

f'c : Concrete 28 day strength	=	4.0	ksi
fy : Rebar Yield	=	60.0	ksi
Ec : Concrete Elastic Modulus	=	3,122.0	ksi
Concrete Density	=	145.0	pcf
φ Values Flexure	=	0.90	
Shear	=	0.750	

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	0.00180
Min. Overturning Safety Factor	=	1.50 : 1
Min. Sliding Safety Factor	=	1.50 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	3.0	ksf
Soil Density	=	110.0	pcf
Increase Bearing By Footing Weight	=	No	
Soil Passive Resistance (for Sliding)	=	250.0	pcf
Soil/Concrete Friction Coeff.	=	0.30	

Increases based on footing Depth

Footing base depth below soil surface	=	ft
Allow press. increase per foot of depth	=	ksf
when footing base is below	=	ft

Increases based on footing plan dimension

Allowable pressure increase per foot of depth	=	ksf
when max. length or width is greater than	=	ft

Dimensions

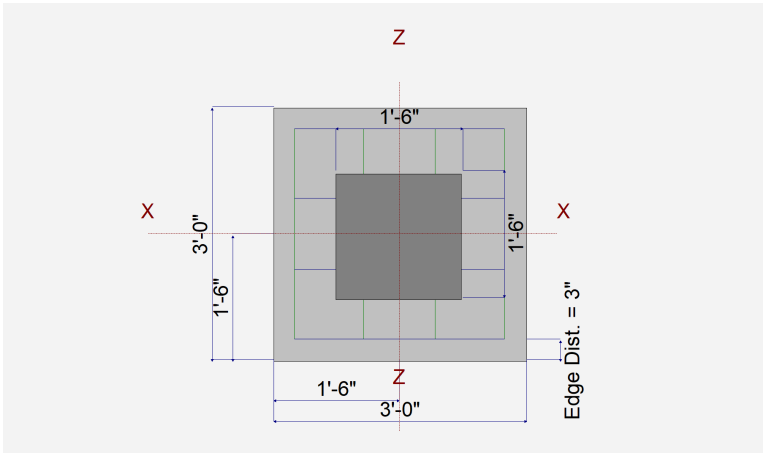
Width parallel to X-X Axis	=	3.0 ft
Length parallel to Z-Z Axis	=	3.0 ft
Footing Thickness	=	12.0 in

Pedestal dimensions...

px : parallel to X-X Axis	=	18.0 in
pz : parallel to Z-Z Axis	=	18.0 in
Height	=	24.0 in

Rebar Centerline to Edge of Concrete...

at Bottom of footing	=	3.0 in

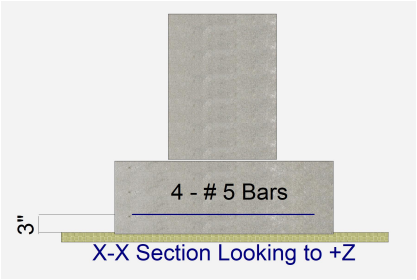


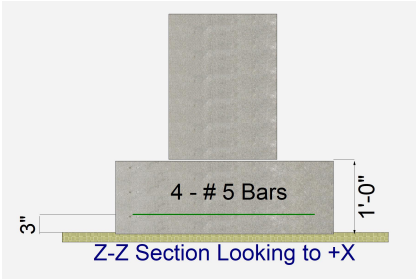
Reinforcing

Bars parallel to X-X Axis			
Number of Bars	=		4.0
Reinforcing Bar Size	=	#	5
Bars parallel to Z-Z Axis			
Number of Bars	=		4.0
Reinforcing Bar Size	=	#	5

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation n/a
Bars required within zone n/a
Bars required on each side of zone n/a





Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	4.70							k
OB : Overburden	=								ksf
M-xx	=								k-ft
M-zz	=								k-ft
V-x	=	0.20							k
V-z	=								k

General Footing

LIC# : KW-06017163, Build:20.25.02.26 KL&A, INC. (c) ENERCALC, LLC 1982-2026

DESCRIPTION: Shade Structure Foundation

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.2664	Soil Bearing	0.7992 ksf	3.0 ksf	D Only about Z-Z axis
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	15.013	Overturning - Z-Z	0.60 k-ft	9.008 k-ft	D Only
PASS	9.008	Sliding - X-X	0.20 k	1.802 k	D Only
PASS	n/a	Sliding - Z-Z	0.0 k	0.0 k	No Sliding
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.01542	Z Flexure (+X)	0.2494 k-ft/ft	16.175 k-ft/ft	+1.40D
PASS	0.01001	Z Flexure (-X)	0.1619 k-ft/ft	16.175 k-ft/ft	+1.40D
PASS	0.01271	X Flexure (+Z)	0.2056 k-ft/ft	16.175 k-ft/ft	+1.40D
PASS	0.01271	X Flexure (-Z)	0.2056 k-ft/ft	16.175 k-ft/ft	+1.40D
PASS	n/a	1-way Shear (+X)	0.0 psi	59.357 psi	n/a
PASS	0.0	1-way Shear (-X)	0.0 psi	0.0 psi	n/a
PASS	n/a	1-way Shear (+Z)	0.0 psi	59.357 psi	n/a
PASS	n/a	1-way Shear (-Z)	0.0 psi	59.357 psi	n/a
PASS	n/a	2-way Punching	2.859 psi	59.357 psi	+1.40D

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc (in)	Zecc (in)	Actual Soil Bearing Stress @ Location Bottom, -Z	Top, +Z	Left, -X	Right, +X	Actual / Allow Ratio
X-X, D Only	3.0	n/a	0.0	0.6672	0.6672	n/a	n/a	0.222
X-X, +0.60D	3.0	n/a	0.0	0.4003	0.4003	n/a	n/a	0.133
Z-Z, D Only	3.0	1.199	n/a	n/a	n/a	0.5352	0.7992	0.266
Z-Z, +0.60D	3.0	1.199	n/a	n/a	n/a	0.3211	0.4795	0.160

Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
X-X, D Only	None	0.0 k-ft	Infinity	OK
X-X, +0.60D	None	0.0 k-ft	Infinity	OK
Z-Z, D Only	0.60 k-ft	9.008 k-ft	15.013	OK
Z-Z, +0.60D	0.360 k-ft	5.405 k-ft	15.013	OK

Sliding Stability

All units k

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Stability Ratio	Status
X-X, D Only	0.20 k	1.802 k	9.008	OK
X-X, +0.60D	0.120 k	1.081 k	9.008	OK
Z-Z, D Only	0.0 k	1.802 k	No Sliding	OK
Z-Z, +0.60D	0.0 k	1.081 k	No Sliding	OK

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	0.2056	+Z	Bottom	0.2592	ACI 7.6.1.1	0.4133	16.175	OK
X-X, +1.40D	0.2056	-Z	Bottom	0.2592	ACI 7.6.1.1	0.4133	16.175	OK
X-X, +1.20D	0.1763	+Z	Bottom	0.2592	ACI 7.6.1.1	0.4133	16.175	OK
X-X, +1.20D	0.1763	-Z	Bottom	0.2592	ACI 7.6.1.1	0.4133	16.175	OK
X-X, +0.90D	0.1322	+Z	Bottom	0.2592	ACI 7.6.1.1	0.4133	16.175	OK
X-X, +0.90D	0.1322	-Z	Bottom	0.2592	ACI 7.6.1.1	0.4133	16.175	OK
Z-Z, +1.40D	0.1619	-X	Bottom	0.2592	ACI 7.6.1.1	0.4133	16.175	OK
Z-Z, +1.40D	0.2494	+X	Bottom	0.2592	ACI 7.6.1.1	0.4133	16.175	OK
Z-Z, +1.20D	0.1388	-X	Bottom	0.2592	ACI 7.6.1.1	0.4133	16.175	OK
Z-Z, +1.20D	0.2137	+X	Bottom	0.2592	ACI 7.6.1.1	0.4133	16.175	OK
Z-Z, +0.90D	0.1041	-X	Bottom	0.2592	ACI 7.6.1.1	0.4133	16.175	OK
Z-Z, +0.90D	0.1603	+X	Bottom	0.2592	ACI 7.6.1.1	0.4133	16.175	OK

General Footing

LIC# : KW-06017163, Build:20.25.02.26 KL&A, INC. (c) ENERCALC, LLC 1982-2026

DESCRIPTION: Shade Structure Foundation

One Way Shear X

Load Combination...	Vu @ -X	Vu @ +X	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	0.00 psi	0.00 psi	0.00 psi	59.36 psi	0.00	OK
+1.20D	0.00 psi	0.00 psi	0.00 psi	59.36 psi	0.00	OK
+0.90D	0.00 psi	0.00 psi	0.00 psi	59.36 psi	0.00	OK

One Way Shear Z

Load Combination...	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	0.00 psi	0.00 psi	0.00 psi	59.36 psi	0.00	OK
+1.20D	0.00 psi	0.00 psi	0.00 psi	59.36 psi	0.00	OK
+0.90D	0.00 psi	0.00 psi	0.00 psi	59.36 psi	0.00	OK

Two-Way "Punching" Shear

All units k

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	2.86 psi	189.74 psi	0.01507	OK
+1.20D	2.45 psi	189.74 psi	0.01292	OK
+0.90D	1.84 psi	189.74 psi	0.009688	OK

603. BUILDING SHRINKAGE CALCULATION

BUILDING SHRINKAGE CALCULATION

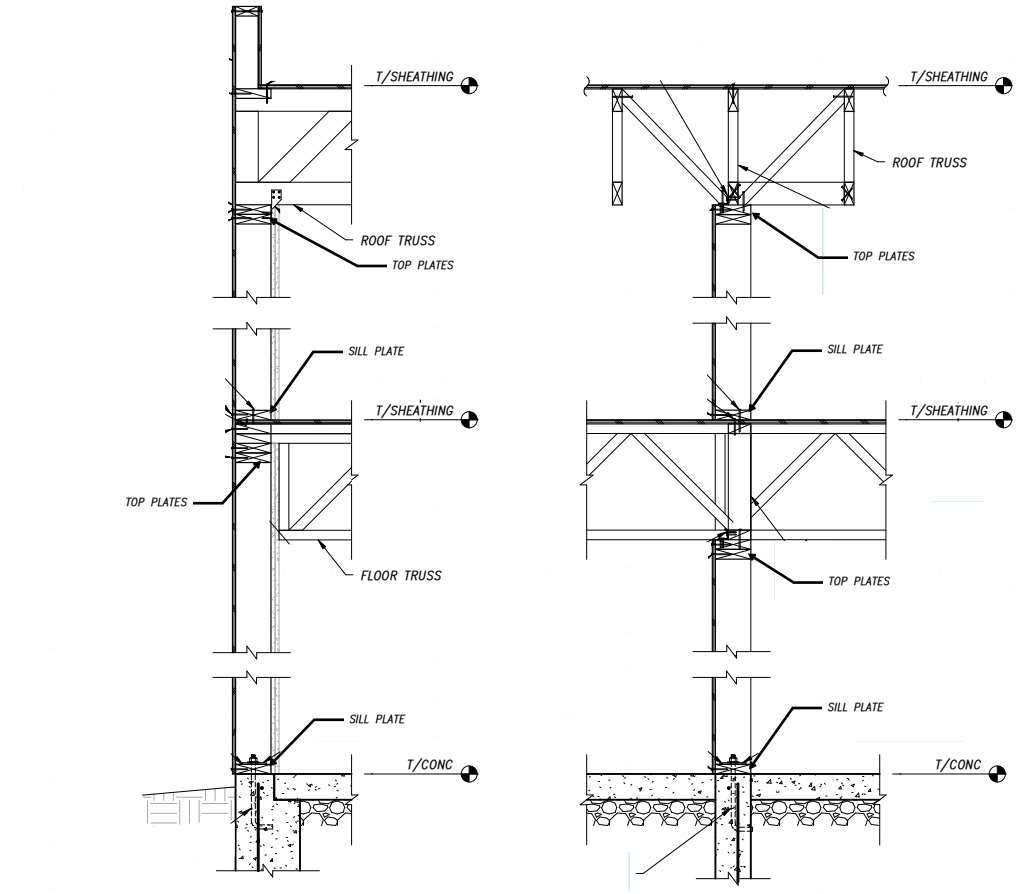
PER IBC 2021 SECTION 2304.3.3:
Wood walls and bearing partitions shall not support tmore than two floor sand a roof unless an analysis satisfactory to the building official shows that shrinkage of the wood framing will not have adverse effects on the structure or any plumbing, electrical or mechanical systems or other equipment installed therein due to excessive shrinkage or differential movements caused by shrinkage. The analysis shall show that the roof drainage system and the foregoing systems or equipment will not be adversely affected or, as an alternate, such systems shall be designed to accommodate the differential shrinkage or movements.

See following pages for wood shrinkage calculation for reference. The anticipated shrinkage for each level is on the order of ¼" with an overall shrinkage of 1" noticed at the roof.

The primary concern for shrinkage of this magnitude is differential movement between dissimilar materials, most notably exterior brick veneer, interior architectural finishes, and plumbing stack hard points.

This project does not utilize brick veneer.
We have informed the Architect and Mechanical Engineer of the anticipated shrinkage for them to verify their systems can accommodate.

Additionally structural lateral force resisting components need to be designed for the building shrinkage, specifically the strong rod system for uplift resistance. We have specified an anchor rod system to resist uplift which utilizes 'Take–Up Devices' designed to accommodate the shrinkage of the structure.



Wood Shrinkage Calculator

The Wood Shrinkage Calculator is a quick and easy tool to estimate the amount of shrinkage the structure may experience as the wood member loses moisture content after it is framed and in service. The calculator estimates the shrinkage of each wood member in the wall and floor framing assembly and provides a graphical summary to help understand the global impact of shrinkage of individual elements in the wall system. The summary can then be used to determine the best approach to handle the shrinkage in the system. Each member of the wall and floor assembly is listed in the results table along with its calculated shrinkage amount which may be printed and maintained with the project.

Click on the help buttons (?) for information to guide you through the details. Or click here for a step-by-step tutorial that will run alongside the calculator. PDF and printable outputs are available on the Results page.

WOOD SHRINKAGE CALCULATOR VIDEO TUTORIAL

Steamboat Basecamp II

Holdown/Strap System Shrinkage Summary

Location	Member	Depth	Shrinkage Coefficient	Moisture Change	Member Shrinkage	Incremental Shrinkage
5th Story Sole Plate	2x DF	1.5 in.	0.002	10%	0.03 in.	
5th Floor System	Floor Truss	3 in.	0.0025	10%	0.075 in.	0.165 in.
4th Story Top Plate	2-2x DF	3 in.	0.002	10%	0.06 in.	
4th Story Sole Plate	2x DF	1.5 in.	0.002	10%	0.03 in.	
4th Floor System	Floor Truss	3 in.	0.0025	10%	0.075 in.	0.165 in.
3rd Story Top Plate	2-2x DF	3 in.	0.002	10%	0.06 in.	
3rd Story Sole Plate	2x DF	1.5 in.	0.002	10%	0.03 in.	
3rd Floor System	Floor Truss	3 in.	0.0025	10%	0.075 in.	0.165 in.
2nd Story Top Plate	2-2x DF	3 in.	0.002	10%	0.06 in.	
2nd Story Sole Plate	2x DF	1.5 in.	0.002	10%	0.03 in.	
2nd Floor System	Floor Truss	3 in.	0.0025	10%	0.075 in.	0.165 in.
1st Story Top Plate	2-2x DF	3 in.	0.002	10%	0.06 in.	
1st Story Sill Plate	2x DF	1.5 in.	0.002	10%	0.03 in.	0.030 in.

Continuous Rod System Shrinkage Summary

Location	Member	Depth	Shrinkage Coefficient	Moisture Change	Member Shrinkage	Cumulative Shrinkage
5th Story Top Plate	2-2x DF	3 in.	0.002	10%	0.06 in.	1.010 in.
5th Story Stud	Stud	104.5 in.	0.00005	10%	0.052 in.	0.950 in.
5th Story Sole Plate	2x DF	1.5 in.	0.002	10%	0.03 in.	0.898 in.
5th Floor System	Floor Truss	3 in.	0.0025	10%	0.075 in.	0.868 in.
4th Story Top Plate	2-2x DF	3 in.	0.002	10%	0.06 in.	0.793 in.
4th Story Stud	Stud	104.5 in.	0.00005	10%	0.052 in.	0.733 in.
4th Story Sole Plate	2x DF	1.5 in.	0.002	10%	0.03 in.	0.681 in.
4th Floor System	Floor Truss	3 in.	0.0025	10%	0.075 in.	0.651 in.
3rd Story Top Plate	2-2x DF	3 in.	0.002	10%	0.06 in.	0.576 in.
3rd Story Stud	Stud	104.5 in.	0.00005	10%	0.052 in.	0.516 in.
3rd Story Sole Plate	2x DF	1.5 in.	0.002	10%	0.03 in.	0.464 in.
3rd Floor System	Floor Truss	3 in.	0.0025	10%	0.075 in.	0.434 in.
2nd Story Top Plate	2-2x DF	3 in.	0.002	10%	0.06 in.	0.359 in.
2nd Story Stud	Stud	104.5 in.	0.00005	10%	0.052 in.	0.299 in.
2nd Story Sole Plate	2x DF	1.5 in.	0.002	10%	0.03 in.	0.247 in.
2nd Floor System	Floor Truss	3 in.	0.0025	10%	0.075 in.	0.217 in.
1st Story Top Plate	2-2x DF	3 in.	0.002	10%	0.06 in.	0.142 in.
1st Story Stud	Stud	104.5 in.	0.00005	10%	0.052 in.	0.082 in.
1st Story Sill Plate	2x DF	1.5 in.	0.002	10%	0.03 in.	0.030 in.

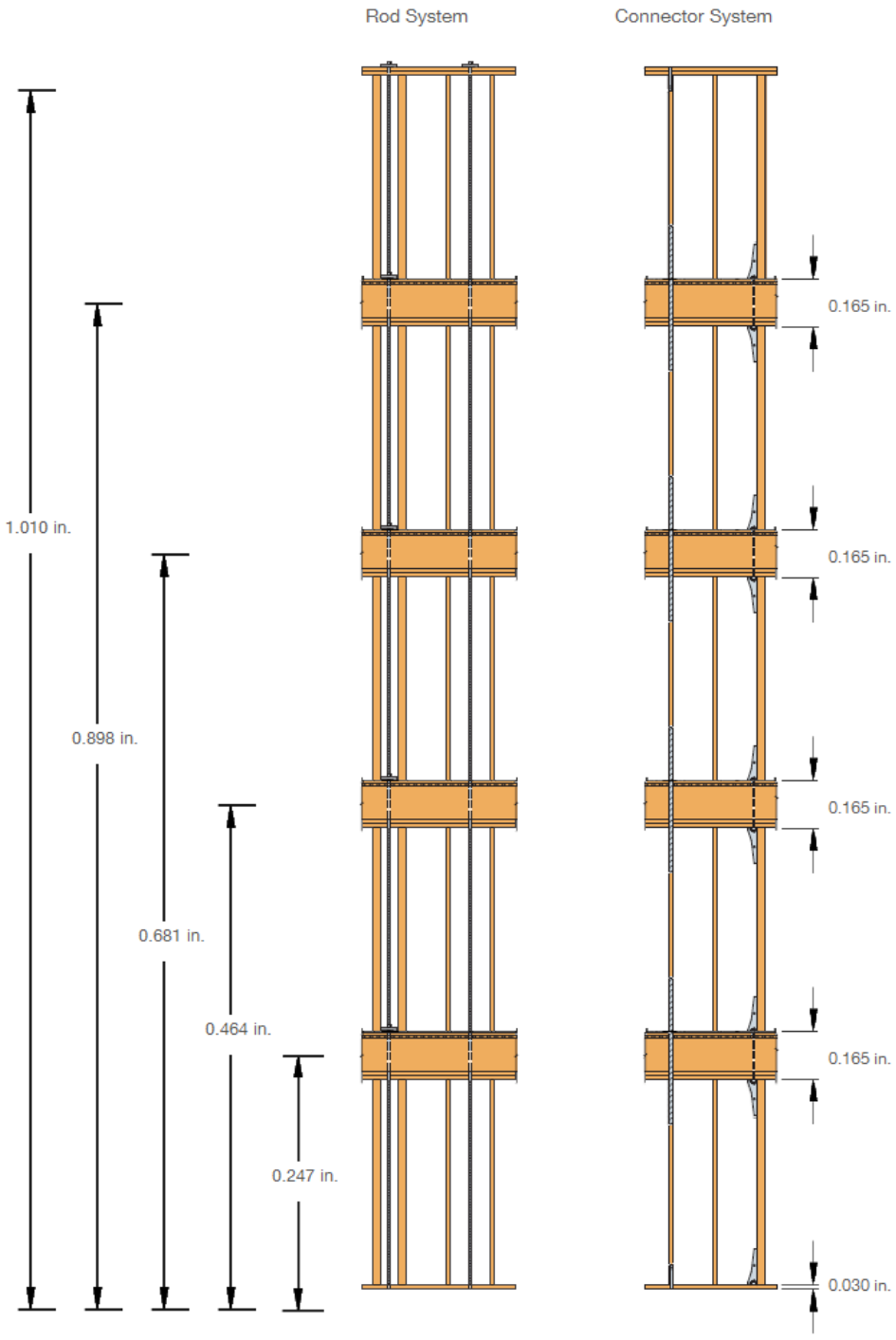
Calculation Notes:

1. Calculation assumes that the sub-floor material is dimensionally stable and its shrinkage is negligible.
2. Calculation assumes that EWP members are dimensionally stable and its shrinkage is negligible. EWP members include I joists, LVL, LSL, and PSL.

LVL, LSL, and PSL.

3. Calculation assumes that floor trusses have a single top and bottom chord member whose shrinkage is equivalent to (2) SP 2x plates.
4. Calculator assumes that solid sawn members are between 2" – 4" nominal thickness. Heavy timbers that are 5" and thicker may be seasoned differently than smaller members and are therefore not considered in combination with other members in this calculator.

Steamboat Basecamp II



WoodWorks™
WOOD PRODUCTS COUNCIL

Accommodating Shrinkage in Multi-Story Wood-Frame Structures

Richard McLain, MS, PE, SE, Senior Technical Director – Tall Wood, WoodWorks • Doug Steimle, PE, Principal, Schaefer

In wood-frame buildings of three or more stories, cumulative shrinkage can be significant and have an impact on the function and performance of finishes, openings, mechanical/electrical/plumbing (MEP) systems, and structural connections. However, as more designers look to wood-frame construction to improve the cost and sustainability of their mid-rise projects, many have learned that accommodating wood shrinkage is actually very straightforward.

Wood is hygroscopic, meaning it has the ability to absorb and release moisture. As this occurs, it also has the potential to change dimensionally. Knowing how and where wood shrinks and swells helps designers detail their buildings to minimize related effects.

Wood shrinkage occurs perpendicular to grain, meaning that a solid sawn wood stud or floor joist will shrink in its cross-section dimensions (width and depth). Longitudinal shrinkage is negligible, meaning the length of a stud or floor joist will essentially remain unchanged. In multi-story buildings, wood shrinkage is therefore concentrated at the wall plates, floor and roof joists, and rim boards. Depending on the materials and details used at floor-to-wall and roof-to-wall intersections, shrinkage in light-frame wood construction can range from 0.05 inches to 0.5 inches per level.

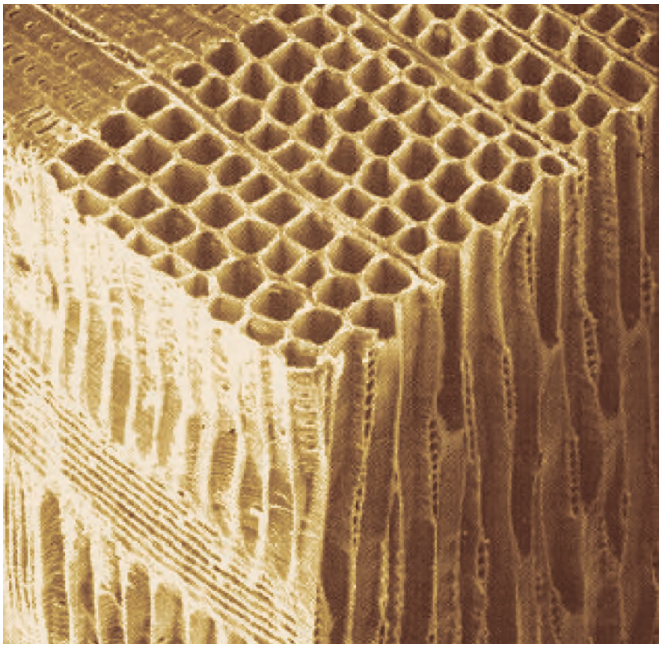
This publication will describe procedures for estimating wood shrinkage and provide detailing options that minimize its effects on building performance.

The Brooklyn Riverside
Jacksonville, Florida
Architect: Dwell Design Studio
Structural Engineer: M2 Structural Engineering

Photo: Pollack Shores, Matrix Residential

Wood Science & Shrinkage

Understanding the cellular structure of wood allows us to understand how moisture and wood interact and identify the paths that moisture typically travels. Within wood, moisture is present in two forms: (1) free water in cell cavities, and (2) bound water in cell walls. Simplistically, wood's cellular structure can be imagined as a bundle of drinking straws held together with a rubber band, with each straw representing a longitudinal cell in the wood. Water can be free water stored in the straw cavity or bound water absorbed by the straw walls. At high moisture contents, water exists in both locations. As the wood dries, the free water is released from the cell cavities before the bound water is released from the cell walls. When wood has no free water and yet the cell wall is still saturated, it is said to be at its fiber saturation point (FSP). Imagine a sponge that has just been taken out of a bucket filled with water. As the sponge is lifted from the bucket, water comes out of the pores. When the sponge is squeezed, more water comes out of the pores. The moment when no water can be squeezed out of the sponge but yet it still feels damp is analogous to the FSP. The moisture retained in the sponge is the bound water and water that has been squeezed out is the free water.



Southern yellow pine cellular makeup

Source: USDA Forest Service Agricultural Handbook

Moisture Content

Wood moisture content (MC) is the weight of water in wood as a percentage of the completely dry wood weight. During the life of a tree, its MC can exceed 200 percent, meaning the total water weight in a given volume of wood makes up two thirds or more of the total weight.

The FSP of different species of wood varies but for most common softwoods is around 28-30 percent. The MC of lumber in service is typically 7-14 percent, much lower than the FSP. Wood remains dimensionally stable above the FSP; i.e., it doesn't change in dimension with an increase or decrease of moisture as long as it remains above the FSP at all times. This is because the water being absorbed or released is largely free water, not bound water. Once the moisture content drops below the FSP (i.e., bound water is being removed), the wood starts to change dimensionally. Since water is now being released from cell walls, both the walls and surrounding structure shrink, causing the overall cross-section of wood to shrink. For structural wood members, the MC of the wood is reduced after milling, either by air or kiln drying.

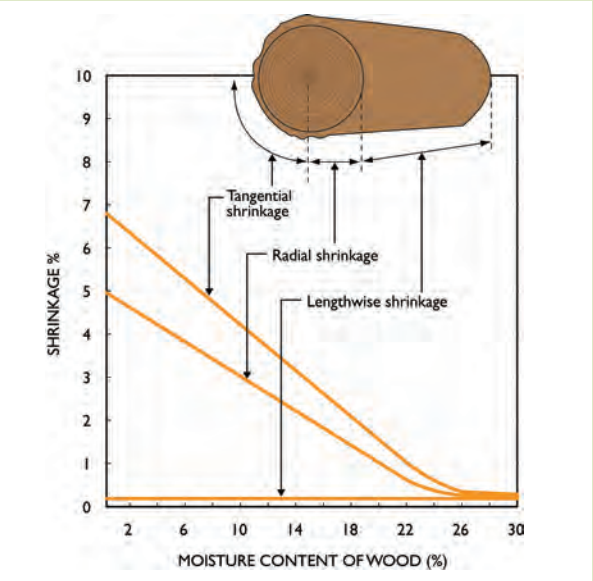
As a side note, moisture absorption has the opposite effect—expansion. As the MC of a piece of wood increases (up to the point that it reaches its FSP), it will expand in cross-section based on the same principles (increase of bound water).

While wood shrinkage is noticeable in both cross-section dimensions (width and depth), the two are typically not equal. Wood shrinks most in the direction tangential to the growth rings, and about half as much in the radial direction (see Figure 1). Table 13-5 of the *Wood Handbook*[1] published by the USDA Forest Products Laboratory provides shrinkage values for a number of softwood species (see Figure 6).

Wood shrinkage can be calculated using exact grain orientation and species-dependent shrinkage coefficients. However, it is impossible to predict grain orientation (tangential, radial or a combination) of members such as wall plates and floor joists. Due to this, it is either assumed that both radial and tangential grain orientation will be present and the amount of shrinkage will be an average of the two or the worst case of all tangential grain orientation is used.

For most structural applications, a simplified method is considered sufficiently accurate. The common approximation is that wood shrinks 1 percent in the cross-sectional dimension for every 4 percent MC change from 0-30 percent.[2] This translates to a dimensional change of 0.0025 inches per inch of cross-sectional dimension for every 1 percent change in MC. An example calculation using this technique is included in the section Calculating Shrinkage beginning on page 5.

FIGURE 1:
Moisture content-shrinkage curves



Source: RDH Building Science Inc.

In wood-frame construction, the three variables influencing the magnitude of shrinkage are:

1. Installed MC
2. In-service MC or equilibrium moisture content (EMC)
3. Cumulative thickness of cross-grain wood elements

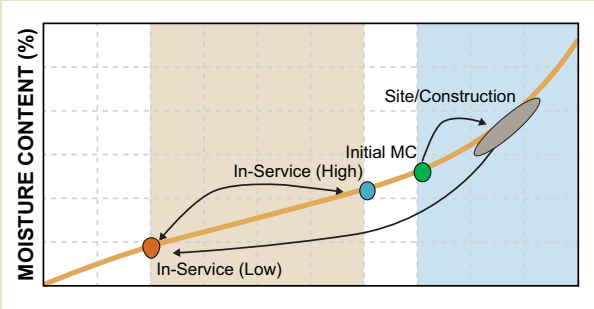
Initial MC, or MC at the time of manufacture, is typically specified on a project's structural drawings. In many parts of the country, the specification would read "a maximum MC of 19 percent." In order to achieve this, lumber is generally kiln dried. Although there are regional variations, less commonly used green lumber (which typically hasn't been kiln dried and has a MC above 19 percent), surface dried lumber or KD-15 (i.e., kiln dried lumber with a maximum MC of 15

percent at time of manufacture) may also be specified. The American Softwood Lumber Standard, PS 20-15, defines dry lumber as "lumber of less than nominal 5-inch thickness which has been seasoned or dried to a maximum moisture content of 19 percent." Engineered wood products, including wood structural panels such as plywood and oriented strand board (OSB), glued-laminated timber (glulam) and structural composite lumber (SCL), are manufactured with lower moisture contents, in the range of 2-15 percent. Engineered wood manufacturers generally provide initial moisture contents for their products.

Lumber that has been dried to a maximum MC of 19 percent at the time of manufacture does not necessarily maintain that MC over the course of its pre-construction life (distribution, transport and storage), nor does it necessarily stay at that same MC for the duration of construction. It is possible for the pre-construction or construction-phase MC of framing members to rise significantly above 19 percent if they are not protected well. Proper protection of the lumber, both when stockpiled on site and after installation, is critical to good performance. See the section *Minimizing Shrinkage* below for ways to avoid moisture accumulation during construction. Designers may also consider specifying a maximum MC at the time of installation as this is the value that will provide a more accurate shrinkage calculation. Ideally the MC should be measured at time of installation and compared to initial assumptions.

After close-in, the framing in a conditioned building eventually reaches its in-service MC, or EMC, in the range of 7-15 percent. Until that point, the wood framing is subject to inevitable shrinkage (see Figure 2). EMC is a function of temperature and relative humidity as shown in Figure 3. It is worth noting that EMC is a dynamic equilibrium, meaning it can change throughout the year with climate changes. It also varies across the country based on local climatic conditions (see Figure 4). Generally, for wood exposed to exterior (non-conditioned) atmospheric conditions, variations in EMC of 1-3 percent exist between the driest months and wettest months. The EMC of wood within a conditioned building follows the same trends but varies with interior conditions. Typically, the average annual EMC for a given project's climate is used for shrinkage estimation purposes. Several examples exist of projects that have tracked lumber moisture content fluctuations, both during construction and after occupancy.[3]

FIGURE 2:
Moisture content range



Source: RDH Building Science Inc.

Key Terms

Dry lumber – Lumber of less than nominal 5-inch thickness which has been seasoned or dried to a maximum moisture content of 19 percent

Equilibrium moisture content (EMC) – The moisture content at which wood neither gains nor loses moisture when surrounded by air at a given relative humidity and temperature

Green lumber – Lumber of less than nominal 5-inch thickness which has a moisture content in excess of 19 percent or, for lumber of nominal 5-inch or greater thickness (timbers), as defined in accordance with applicable lumber grading rules

Heat treated (HT) – Lumber or other wood product that has been heated in a closed chamber, with or without moisture content reduction, until it achieves a minimum core temperature of 132.8°F for a minimum of 30 minutes

Kiln dried (KD) – Lumber that has been seasoned in a chamber to a predetermined moisture content by applying heat

Moisture content (MC) – The weight of the water in a piece of lumber expressed in a percentage of the weight of the piece after being oven dried

Fiber saturation point (FSP) – The point in drying wood at which all free moisture has been removed from the cell itself while the cell wall remains saturated with absorbed moisture

Example lumber grade stamps

Grade Stamp Markings:

S-GRN: surfaced green

S-DRY: surfaced dry

KD: kiln dried

HT: heat treated

Sources: (left) Western Wood Products Association (WWPA); (right) Northeastern Lumber Manufacturers Association (NELMA)

FIGURE 3:
Equilibrium moisture content – relative humidity vs. temperature

Table 4–2. Moisture content of wood in equilibrium with stated temperature and relative humidity

Temperature		Moisture content (%) at various relative humidity values																	
(°C	(°F))	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%	90%	95%
–1.1	(30)	1.4	2.6	3.7	4.6	5.5	6.3	7.1	7.9	8.7	9.5	10.4	11.3	12.4	13.5	14.9	16.5	18.5	21.0	24.3
4.4	(40)	1.4	2.6	3.7	4.6	5.5	6.3	7.1	7.9	8.7	9.5	10.4	11.3	12.3	13.5	14.9	16.5	18.5	21.0	24.3
10.0	(50)	1.4	2.6	3.6	4.6	5.5	6.3	7.1	7.9	8.7	9.5	10.3	11.2	12.3	13.4	14.8	16.4	18.4	20.9	24.3
15.6	(60)	1.3	2.5	3.6	4.6	5.4	6.2	7.0	7.8	8.6	9.4	10.2	11.1	12.1	13.3	14.6	16.2	18.2	20.7	24.1
21.1	(70)	1.3	2.5	3.5	4.5	5.4	6.2	6.9	7.7	8.5	9.2	10.1	11.0	12.0	13.1	14.4	16.0	17.9	20.5	23.9
26.7	(80)	1.3	2.4	3.5	4.4	5.3	6.1	6.8	7.6	8.3	9.1	9.9	10.8	11.7	12.9	14.2	15.7	17.7	20.2	23.6
32.2	(90)	1.2	2.3	3.4	4.3	5.1	5.9	6.7	7.4	8.1	8.9	9.7	10.5	11.5	12.6	13.9	15.4	17.3	19.8	23.3
37.8	(100)	1.2	2.3	3.3	4.2	5.0	5.8	6.5	7.2	7.9	8.7	9.5	10.3	11.2	12.3	13.6	15.1	17.0	19.5	22.9
43.3	(110)	1.1	2.2	3.2	4.0	4.9	5.6	6.3	7.0	7.7	8.4	9.2	10.0	11.0	12.0	13.2	14.7	16.6	19.1	22.4
48.9	(120)	1.1	2.1	3.0	3.9	4.7	5.4	6.1	6.8	7.5	8.2	8.9	9.7	10.6	11.7	12.9	14.4	16.2	18.6	22.0
54.4	(130)	1.0	2.0	2.9	3.7	4.5	5.2	5.9	6.6	7.2	7.9	8.7	9.4	10.3	11.3	12.5	14.0	15.8	18.2	21.5
60.0	(140)	0.9	1.9	2.8	3.6	4.3	5.0	5.7	6.3	7.0	7.7	8.4	9.1	10.0	11.0	12.1	13.6	15.3	17.7	21.0
65.6	(150)	0.9	1.8	2.6	3.4	4.1	4.8	5.5	6.1	6.7	7.4	8.1	8.8	9.7	10.6	11.8	13.1	14.9	17.2	20.4
71.1	(160)	0.8	1.6	2.4	3.2	3.9	4.6	5.2	5.8	6.4	7.1	7.8	8.5	9.3	10.3	11.4	12.7	14.4	16.7	19.9
76.7	(170)	0.7	1.5	2.3	3.0	3.7	4.3	4.9	5.6	6.2	6.8	7.4	8.2	9.0	9.9	11.0	12.3	14.0	16.2	19.3
82.2	(180)	0.7	1.4	2.1	2.8	3.5	4.1	4.7	5.3	5.9	6.5	7.1	7.8	8.6	9.5	10.5	11.8	13.5	15.7	18.7
87.8	(190)	0.6	1.3	1.9	2.6	3.2	3.8	4.4	5.0	5.5	6.1	6.8	7.5	8.2	9.1	10.1	11.4	13.0	15.1	18.1
93.3	(200)	0.5	1.1	1.7	2.4	3.0	3.5	4.1	4.6	5.2	5.8	6.4	7.1	7.8	8.7	9.7	10.9	12.5	14.6	17.5
98.9	(210)	0.5	1.0	1.6	2.1	2.7	3.2	3.8	4.3	4.9	5.4	6.0	6.7	7.4	8.3	9.2	10.4	12.0	14.0	16.9
104.4	(220)	0.4	0.9	1.4	1.9	2.4	2.9	3.4	3.9	4.5	5.0	5.6	6.3	7.0	7.8	8.8	9.9			
110.0	(230)	0.3	0.8	1.2	1.6	2.1	2.6	3.1	3.6	4.2	4.7	5.3	6.0	6.7						
115.6	(240)	0.3	0.6	0.9	1.3	1.7	2.1	2.6	3.1	3.5	4.1	4.6								
121.1	(250)	0.2	0.4	0.7	1.0	1.3	1.7	2.1	2.5	2.9										
126.7	(260)	0.2	0.3	0.5	0.7	0.9	1.1	1.4												
132.2	(270)	0.1	0.1	0.2	0.3	0.4	0.4													

Source: Wood Handbook, USDA Forest Products Laboratory

FIGURE 4:
Equilibrium moisture content for a sample of regional cities

Table 13–1. Equilibrium moisture content for outside conditions in several U.S. locations prior to 1997

		Equilibrium moisture content[a] (%)											
State	City	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
AK	Juneau	16.5	16.0	15.1	13.9	13.6	13.9	15.1	16.5	18.1	18.0	17.7	18.1
AL	Mobile	13.8	13.1	13.3	13.3	13.4	13.3	14.2	14.4	13.9	13.0	13.7	14.0
AZ	Flagstaff	11.8	11.4	10.8	9.3	8.8	7.5	9.7	11.1	10.3	10.1	10.8	11.8
AZ	Phoenix	9.4	8.4	7.9	6.1	5.1	4.6	6.2	6.9	6.9	7.0	8.2	9.5
AR	Little Rock	13.8	13.2	12.8	13.1	13.7	13.1	13.3	13.5	13.9	13.1	13.5	13.9
CA	Fresno	16.4	14.1	12.6	10.6	9.1	8.2	7.8	8.4	9.2	10.3	13.4	16.6
CA	Los Angeles	12.2	13.0	13.8	13.8	14.4	14.8	15.0	15.1	14.5	13.8	12.4	12.1
CO	Denver	10.7	10.5	10.2	9.6	10.2	9.6	9.4	9.6	9.5	9.5	11.0	11.0
DC	Washington	11.8	11.5	11.3	11.1	11.6	11.7	11.7	12.3	12.6	12.5	12.2	12.2
FL	Miami	13.5	13.1	12.8	12.3	12.7	14.0	13.7	14.1	14.5	13.5	13.9	13.4
GA	Atlanta	13.3	12.3	12.0	11.8	12.5	13.0	13.8	14.2	13.9	13.0	12.9	13.2
HI	Honolulu	13.3	12.8	11.9	11.3	10.8	10.6	10.6	10.7	10.8	11.3	12.1	12.9
ID	Boise	15.2	13.5	11.1	10.0	9.7	9.0	7.3	7.3	8.4	10.0	13.3	15.2
IL	Chicago	14.2	13.7	13.4	12.5	12.2	12.4	12.8	13.3	13.3	12.9	14.0	14.9
IN	Indianapolis	15.1	14.6	13.8	12.8	13.0	12.8	13.9	14.5	14.2	13.7	14.8	15.7
IA	Des Moines	14.0	13.9	13.3	12.6	12.4	12.6	13.1	13.4	13.7	12.7	13.9	14.9

Source: Wood Handbook, USDA Forest Products Laboratory

Shrinkage Code Requirements

Section 2304.3.3 of the 2018 International Building Code stipulates when shrinkage consideration is required in wood-frame building design.

Wood walls and bearing partitions shall not support more than two floors and a roof unless an analysis satisfactory to the building official shows that shrinkage of the wood framing will not have adverse effects on the structure or any plumbing, electrical or mechanical systems, or other equipment installed therein due to excessive shrinkage or differential movements caused by shrinkage. The analysis shall show that the roof drainage system and the foregoing systems or equipment will not be adversely affected or, as an alternative, such systems shall be designed to accommodate the differential shrinkage or movements.

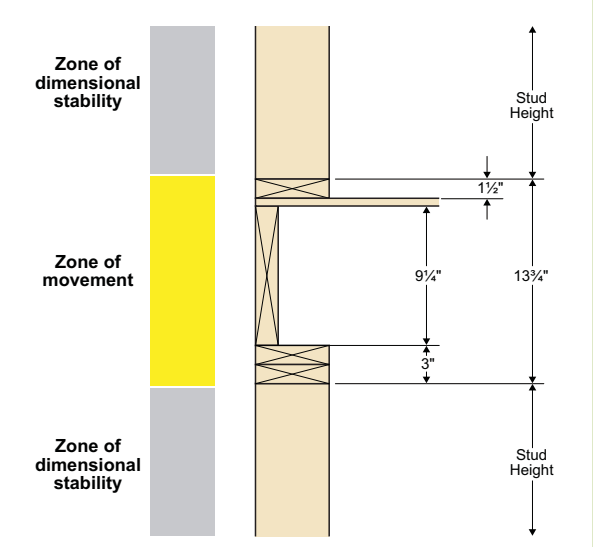
Calculating Shrinkage

Although there are several ways to calculate the amount of shrinkage in wood members, it is important to remember that, regardless of the equations used, they are simple calculations. With proper planning, the amount of wood shrinkage can be accurately predicted with relative ease.

As noted, one simple calculation is to assume a dimensional change of 0.0025 inches per inch of cross-sectional dimension for every 1 percent change in MC. For example, the anticipated shrinkage in a platform-framed, solid sawn lumber floor-to-wall detail that includes a 13.75-inch shrinkage zone (see Figure 5), starting at a MC of 19 percent with an EMC of 12 percent, would be:

Shrinkage = (0.0025)(13.75")(12-19) = - 0.24"

FIGURE 5:
Shrinkage zone in platform-framed detail



Note that the shrinkage is shown as a negative number since it is a loss in cross-section size. Although the difference in shrinkage between common softwood species is minimal, this can be taken into account when running shrinkage calculations. Figure 6 from the *Wood Handbook* shows dimensional change coefficients for a number of softwood species.

FIGURE 6:
Softwood species-specific shrinkage coefficients

Table 13-5. Dimensional change coefficients (C_R, radial; C_T, tangential) for shrinking or welling within moisture content limits of 6% to 14%

Softwood Species	Dimensional change coefficient[a] C_R	C_T
Baldcypress	0.00130	0.00216
Cedar, yellow-	0.00095	0.00208
Cedar, Atlantic white-	0.00099	0.00187
Cedar, Eastern Red	0.00106	0.00162
Cedar, incense	0.00112	0.00180
Cedar, northern white-[b]	0.00101	0.00229
Cedar, Port-Orford-	0.00158	0.00241
Cedar, western red[b]	0.00111	0.00234
Douglas-fir, Coast-type	0.00165	0.00267
Douglas-fir, Interior north	0.00130	0.00241
Douglas-fir, Interior west	0.00165	0.00263
Fir, balsam	0.00099	0.00241
Fir, California red	0.00155	0.00278
Fir, noble	0.00148	0.00293
Fir, Pacific silver	0.00151	0.00327
Fir, subalpine	0.00088	0.00259
Fir, grand	0.00112	0.00245
Fir, white	0.00112	0.00245
Pine, eastern white	0.00071	0.00212
Pine, jack	0.00126	0.00230
Pine, loblolly	0.00165	0.00259
Pine, pond	0.00165	0.00259
Pine, lodgepole	0.00148	0.00234
Pine, Jeffrey	0.00148	0.00234
Pine, longleaf	0.00176	0.00263
Pine, ponderosa	0.00133	0.00216
Pine, red	0.00130	0.00252
Pine, shortleaf	0.00158	0.00271
Pine, slash	0.00187	0.00267
Pine, sugar	0.00099	0.00194
Pine, Virginia	0.00144	0.00252
Pine, western white	0.00141	0.00259
Redwood, old-growth[b]	0.00120	0.00205
Redwood, second-growth[b]	0.00101	0.00229
Spruce, black	0.00141	0.00237
Spruce, Engelmann	0.00130	0.00248

Source: Wood Handbook, USDA Forest Products Laboratory

The equation for wood shrinkage utilizing these coefficients is as follows:

$S = C*D_i*(M_F-M_i)$

Where:

S = Shrinkage

C = Dimensional change coefficient (from the *Wood Handbook*; conservatively, the worst case of C_T is typically used)

D_i = Cross-sectional dimension of wood subject to shrinkage (shrinkage zone)

M_F = Final wood MC

M_i = Initial wood MC

Using the example above, for a longleaf pine (southern pine) member, C_T = 0.00263 and shrinkage is:

S = (0.00263)(13.75")(12-19) = - 0.25"

The result when accounting for the species-specific coefficient is similar to the simplified calculation above. Several free shrinkage calculators can also be found online.

When utilizing other types of floor joists such as I-Joists and parallel chord trusses, a degree of engineering judgement is required to determine what to include in the shrinkage zone. For example, floor sheathing is often manufactured with a low moisture content that could be near or even below the EMC. The same could be true for I-Joists. There is also a possibility that these materials slightly expand as they take on moisture during construction, only to shrink again after the building is closed in. Although the final determination should take into account how well the framing materials are protected from the weather during construction, some engineers choose not to include these members in the shrinkage zone—i.e., they expect no shrinkage contribution from them. For parallel chord trusses in a platform-framed condition, only the top and bottom chords are typically included in the shrinkage zone. This is due to the fact that a vertically-oriented member usually exists at the end of the truss, separating the top and bottom chords, and no longitudinal shrinkage is assumed in this member.

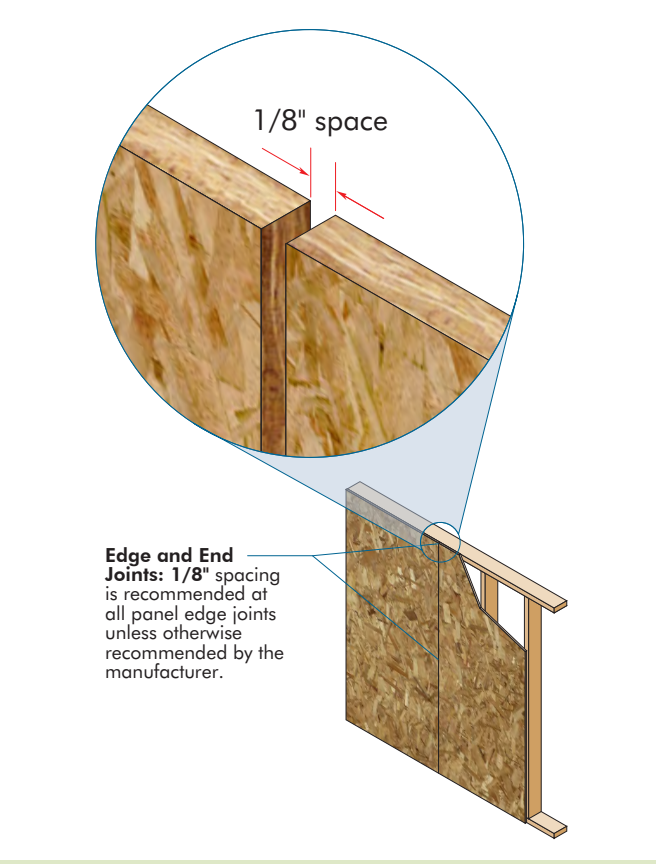
Accommodating Expansion of Wood Products

Although this paper is dedicated to accommodating shrinkage of wood products due to loss of moisture, wood products also have the ability to increase in moisture content and expand in cross-section. This typically occurs during construction as the wood framing may be completed several months before building enclosure systems are installed and made functional. Under these temporary moisture increase conditions, it is important to consider the potential for temporary expansion of wood framing products, particularly panel products such as wall, floor and roof sheathing which may be installed to cover a large expanse in the same plane (e.g., large floor plate or wall elevation).

In order to account for this, APA – The Engineered Wood Association recommends a 1/8-inch space between sheathing panel edges and end joints. If the wood structural panels are tightly butted, there is no room for expansion and buckling can occur. For more information, see the APA publications, M300S – *Builder Tip: Prevent Buckling with Proper Spacing* and U425 – *Technical Note: Temporary Expansion Joints for Large Buildings*.

In addition to consideration of expansion of panel products, mass timber floor and roof decking systems such as nail laminated timber (NLT), glued-laminated timber (sometimes known as GLT in panel applications) and tongue and groove decking also require expansion considerations. These mass timber decking systems utilize solid timber panels composed of solid sawn lumber members stacked horizontally. Knowing that wood increases in its cross-sectional dimensions with increases in MC, it is important to detail gaps between plies or panels to allow expansion to occur during construction without adversely affecting finishes and plumbness of supporting walls and columns.

FIGURE 7:
Example of edge and end joints



Source: APA – The Engineered Wood Association

Rate of Shrinkage

Although it would be convenient to calculate how long it would take a building's wood framing to reach its EMC (and therefore experience its maximum anticipated shrinkage), there are many variables and such a prediction isn't usually feasible. Some of the variables include:

- How well the wood is protected from moisture during construction (both in material stockpiles and once erected)
- Species (or combination of species)
- Time of year the building is constructed
- Regional climatic conditions
- How soon after framing installation the HVAC systems are installed and activated
- How soon after framing installation interior finishes and exterior envelope systems are installed

The wood framing in a building may partially dry during construction (at a relatively slow rate) and then finish drying (at a faster rate) once the building is enclosed and HVAC services are activated. Alternatively, the framing could stay at a relatively high moisture content throughout construction and only begin drying once the building is complete or close to it. Ideally, the majority of a building's shrinkage would occur prior to installation of finishes as this minimizes the effect on those finishes.

Minimizing Shrinkage

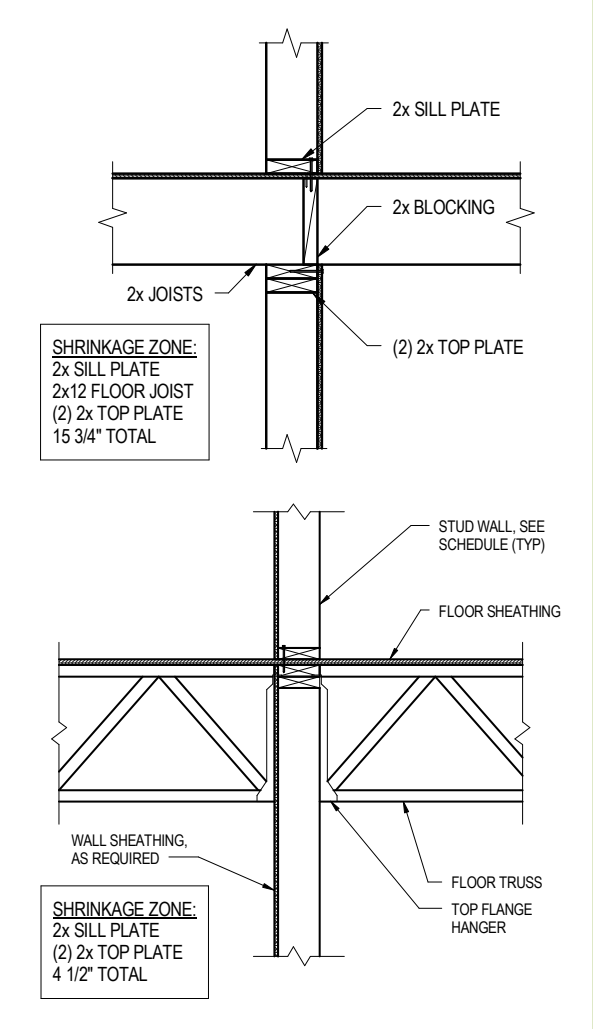
Of the significant variables affecting shrinkage, EMC is the only one largely out of the designer's control. It is heavily influenced by the building's conditioning, including temperature, relative humidity and local climatic conditions. However, a project's design and construction team can influence the two remaining variables—installed moisture content and combined thickness of the wood in cross-grain orientation.

While the initial MC of wood can be specified by the design team, it is subject to change before, during and after construction. The amount of change depends to a large degree on the protective measures taken by the contractor. To minimize moisture accumulation on site:

1. Avoid storing material where it is exposed to rain or standing water.
2. Keep unused framing materials covered.
3. Inspect building enclosure layers such as weather-resistive barriers for proper installation.
4. "Dry-in" the structure as quickly as possible.
5. Immediately remove any standing water from floor framing after rain showers.

Because cross-grain wood members contribute to shrinkage, reducing the total thickness of cross-grain wood members in the vertical load path is one way to minimize shrinkage and its effects. Traditionally, wood-frame construction has been platform-frame, where floor framing and rim or band joists bear on the top plates of supporting walls. However, switching to a semi-balloon-frame system, where only the floor sheathing bears on the lower walls and floor joists are hung from the walls, can significantly reduce per-floor and cumulative building shrinkage. Figure 8 illustrates the difference. The upper platform detail has a shrinkage zone of 15.75 inches per floor, resulting in shrinkage per floor of 0.28 inches, or approximately 1.4 inches for a five-story building. The lower semi-balloon frame detail has a shrinkage zone of 4.5 inches per floor, resulting in shrinkage per floor of 0.08 inches, or approximately 0.4 inches for a five-story building. These values are based on an initial MC of 19 percent and an EMC of 12 percent.

FIGURE 8:
Typical platform-framed detail (top) and semi-balloon-frame detail (bottom)



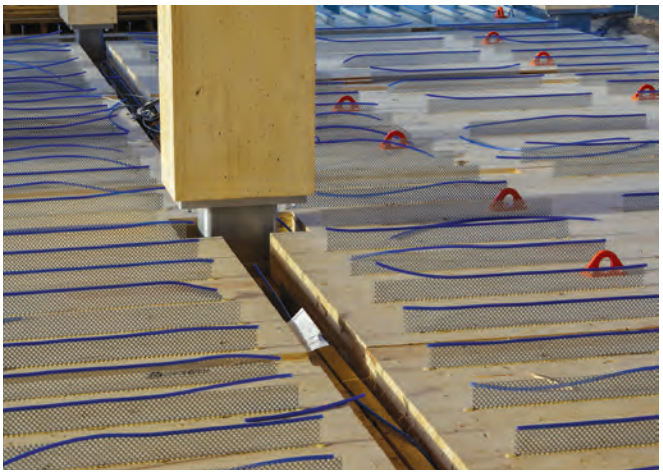
Source: Schaefer

In modern multi-story heavy or mass timber buildings where column and beam structural framing systems are used, detailing the column-to-floor deck and beam connections should include shrinkage consideration.

One option consists of an upper column bearing directly on the mass timber deck, which bears directly on the support beam and lower column. This is the equivalent of the platform-frame detail described above; because the shrinkage zone per floor is relatively deep, shrinkage per floor is at the higher end of the expected range. In a multi-story building, this per floor shrinkage accumulates and can exceed 1 inch overall.

An alternate detailing strategy that minimizes accumulated shrinkage involves column-to-beam connections that isolate the upper column from bearing on the decking and support beam. Detailing strategies involve either notching the column to allow the beam to bear on a shelf or creating a vertical load path where columns above bear directly on columns below.

Alternatively, columns can be single-story with steel connectors aligned with each floor level, which isolates the columns from bearing on the floor deck and beams. The image below illustrates an example of this condition.



Column to column isolation detail at mass timber floor deck

Photo: Alex Schreyer, University of Massachusetts

Differential Movement

When considering how and when wood framing is likely to shrink, it is also important to consider how wood interacts with other building materials and building components. Other materials may exhibit significantly different shrinkage and swelling characteristics. For instance, some materials:

1. Expand due to moisture or thermal changes (brick veneer)
2. Do not shrink due to moisture change but may move with thermal changes (steel framing, and steel/cast iron/PVC piping)
3. Shrink much less (concrete masonry and cementitious veneers)

Brick Veneer and Openings

Openings in wood-frame buildings with brick veneer or other similar cladding materials require special attention to detail. Not only do wood-frame buildings shrink, veneers such as brick can expand, further exaggerating the differential movement. At openings, items such as head and sill flashing and jamb sealing require unique consideration to accommodate this movement. Without proper detailing and installation, issues with drainage and opening operations (i.e., window won't open) can occur.

Veneer sill has been installed too close to the underside of the window

Photo: Schaefer

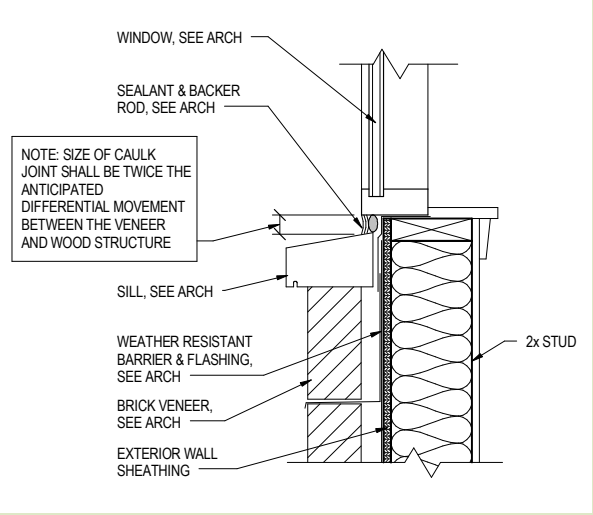
Settlement of Multi-Story Wood Structures:

Although shrinkage is the main cause of multi-story wood-frame building movement, small amounts of movement can also be caused by small gaps between studs and plates, studs and headers and other similar framing conditions. These gaps occur during construction for reasons that include uneven member end cuts, lack of fully engaged fasteners connecting one member to adjacent members, twisting or warping members, etc. However, they tend to close as the building is constructed and additional dead loads are applied prior to installation of finishes and building occupancy. Some engineers include this additional movement in total building shrinkage calculations (1/8-inch per floor is a common assumption for this settlement amount) while others choose to ignore it.

Opening Sill

One detailing strategy to address differential movement at opening sills is to provide a gap between the top of the veneer sill and underside of the wood-frame opening extension/sill. The gap should be appropriately sized to accommodate the anticipated accumulated differential movement for each level. This gap is often filled with a compressible material that is weather resistant and visible in the final condition from the outside of the building. It is important to note that these filler materials can often only compress to half their original thickness, meaning the gap height should be twice the anticipated accumulated differential movement. See Figure 9 for an example of this detail. If the full height of the veneer is supported on the ground level, the gap will need to be larger on each consecutive higher level as differential movement accumulates. Alternatively, the same size gap can be specified for all levels based on the worst case differential at the top level. However, if this option is chosen, the gaps will appear different aesthetically as the upper levels will experience more cumulative shrinkage (less of the gap will be visible) while the lower floors will experience less cumulative shrinkage (more of the gap will be visible). If the veneer is vertically supported at intermediate levels, the accumulated differential shrinkage is reduced based on the distance from the support location to the detail under consideration.

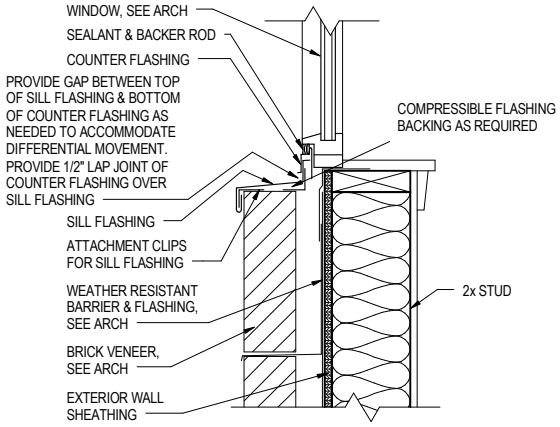
FIGURE 9:
Example window sill detail with gap and compressible filler between veneer and window



Source: Schaefer

Another detailing strategy at opening sills is to provide a double flashing condition with a vertical gap between the two flashing sections to allow vertical differential movement. This allows the two pieces of flashing to move independently while still overlapping and maintaining proper flashing function. See Figure 10 for an example of this detail.

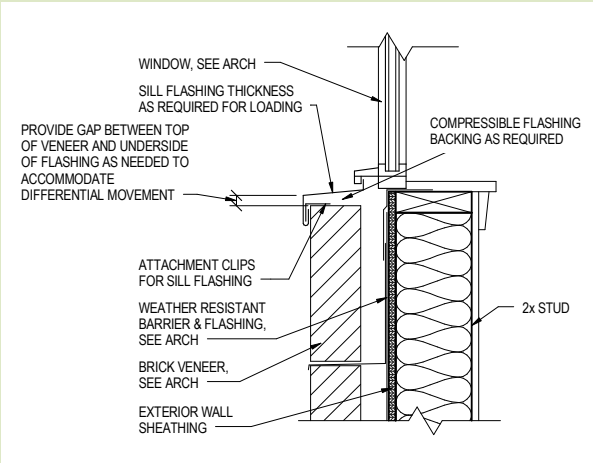
FIGURE 10:
Example window sill detail with double, lapped flashing



Sources: (top) RDH Building Science Inc.; (bottom) Schaefer

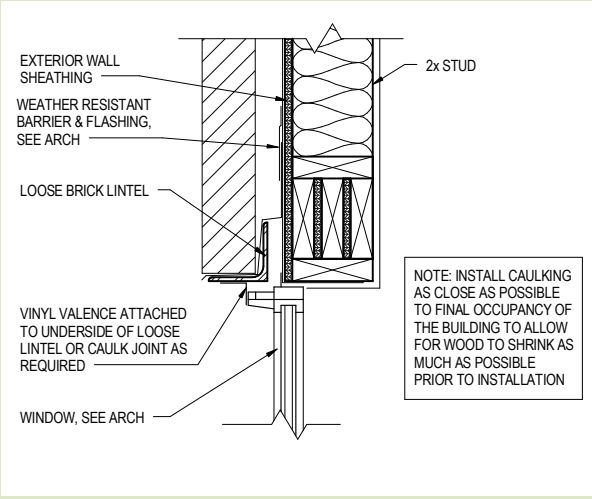
A third detailing strategy is to extend the window sill flashing beyond the veneer sill cap. Under this condition, a gap is provided between the underside of the flashing and top of the veneer cap to allow vertical movement to occur. The flashing is extended down the exterior face of the veneer cap such that coverage occurs at all times regardless of whether any building shrinkage has occurred. See Figure 11 for an example of this detail.

FIGURE 11:
Example window sill detail with flashing extending over face of the veneer cap



Source: Schaefer

FIGURE 12:
Example window head detail



Source: Schaefer

Opening Head

Although sills are more commonly discussed, the heads of openings also require unique attention to detail. As the wood-frame wall shrinks, the header shrinks down with the wall, whereas the veneer may expand upward or maintain its location. This can result in potential failure of the sealed joint between the head of the window and underside of the veneer support.

A common detail at this condition is to utilize a flexible sealant such as caulk. With this solution, care must be taken as the caulk may be prone to pulling apart if the differential movement is not accounted for in the detail used or caulk specified (e.g., the caulk joint can be designed to expand). Also, consider installing the caulk as late as possible in the construction schedule. The closer the building is to its EMC, the less differential movement. That said, delaying installation may not always be possible (or desirable) as it can prevent the ability to weather-proof the building. The building owner should also be notified that periodic inspections and potential re-caulking of these joints may be necessary.

Opening Jamb

Opening jambs can experience similar issues with regard to differential wood-frame and veneer movement. A common detail at jambs is to leave a small gap between the window frame and veneer, which is eventually filled with a flexible, weather-resistant sealant such as caulk. However, as differential movement occurs, failure of the caulk can occur, appearing in the form of shear/diagonal cracks in the caulk. This is because the caulk has bonded to both the veneer and window and, as the two move differentially, shear failure of the caulk occurs. The images to the right illustrate examples of this condition.

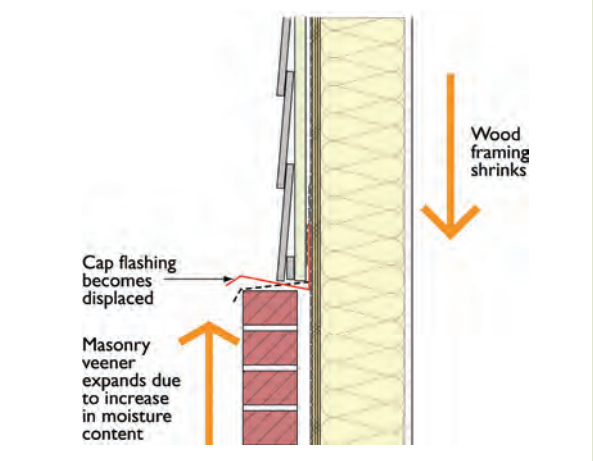
Window jamb and head caulk joint issues
Photos: Schaefer

To avoid this issue, the caulk joint should be designed for the potential differential movement—i.e., consider where accumulated differential movement is highest, which is often at the uppermost story, and design for this scenario. As with the opening heads, consider delaying the caulk joint installation and alert the building owner that periodic inspection and potential re-caulking may be necessary.

Cladding to Brick Veneer Transition

In addition to differential movement considerations at openings, some buildings that include brick veneer transition to a different cladding system at some point in the exterior elevation. A flashing detail at this cladding transition is common. Accommodating differential movement in this flashing detail is important in order to avoid collecting water in this flashing step rather than draining it as shown in Figure 13.

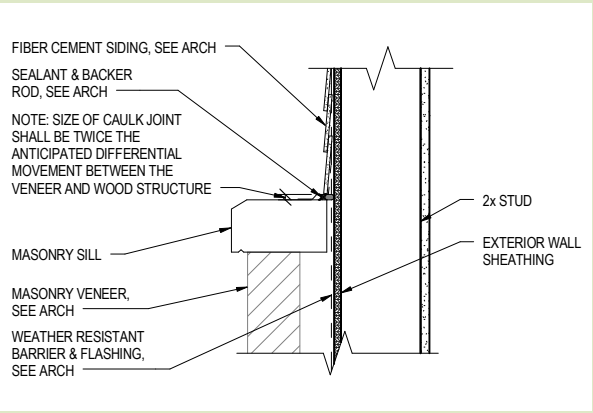
FIGURE 13:
Veneer transition issues due to lack of shrinkage accommodation



Source: RDH Building Science Inc.

Figure 14 shows an example of how this differential can be included in such a flashing detail. The concept is very similar to those discussed at opening sills. A gap is left between the top of the brick veneer cap and bottom of the upper cladding system. Flashing is provided at the transition and the gap is filled with a compressible filler. The gap and filler are sized to match the anticipated differential movement at that elevation, accounting for the ability of the filler to compress.

FIGURE 14:
Example cladding to brick veneer transition detail



Source: Schaefer

For more information, see the WoodWorks publication, *Options for Brick Veneer on Mid-Rise Wood-Frame Buildings*.

Other Architectural Finishes

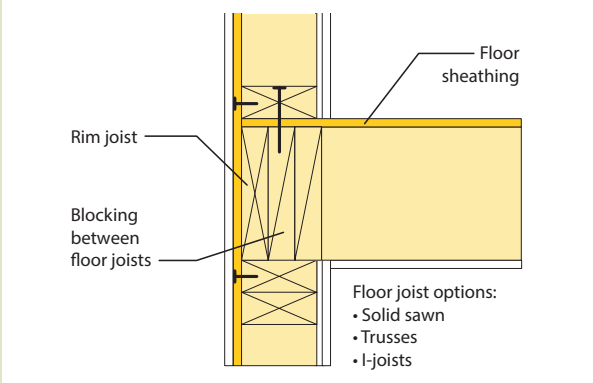
Interior finishes such as gypsum wall board are typically installed on a floor-to-floor basis and therefore only need to accommodate isolated shrinkage per floor. This isolated shrinkage is typically handled by small gaps at the top and base of the gypsum wall covering, where it meets the floor and ceiling framing. However, at some areas of a multi-story building, such as shafts and atriums, where multiple stories of wall finish are continuously installed directly to the wood framing, shrinkage effects should be considered. One approach is to install expansion joints between each gypsum wall board panel to allow the total building shrinkage to be accommodated over the height of the shaft, atrium, etc. This detailing strategy may require the use of compressible fire-safing materials in expansion joints.

Wood-frame shaft wall with continuous gypsum wall board

Masonry Walls

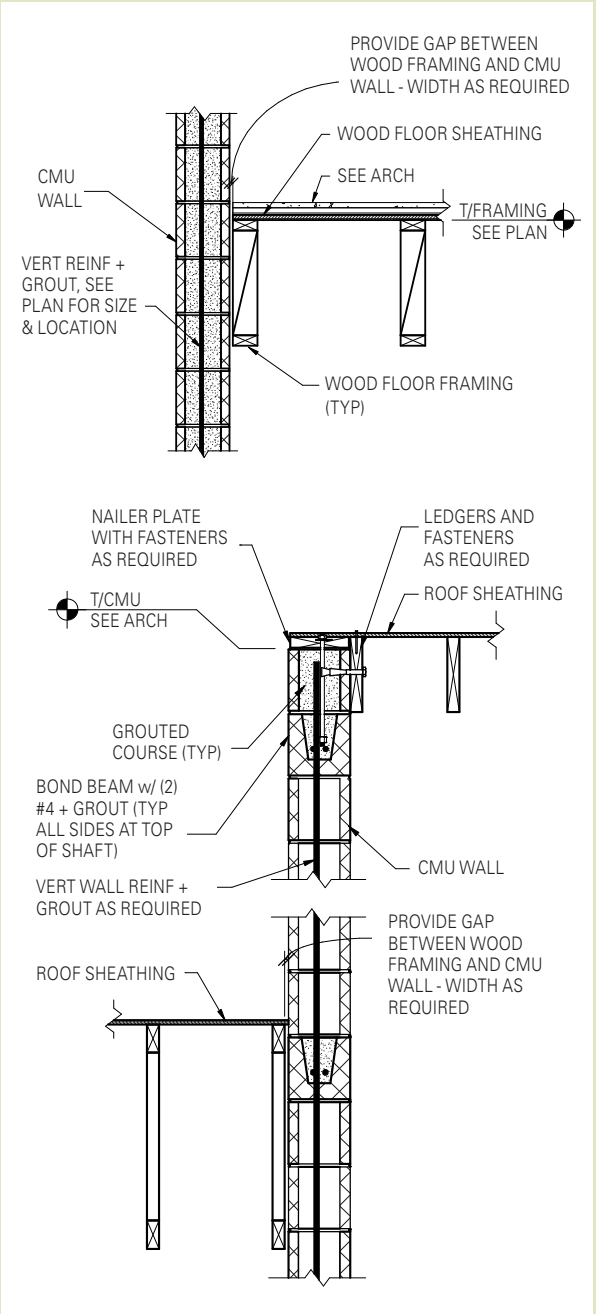
It is fairly common for light wood-frame commercial and multi-family buildings to include shaft walls made from other materials, notably masonry. However, many design professionals are shifting to the use of wood-frame shaft walls in order to realize benefits such as material compatibility (for differential movement as well as seismic force resistance) and cost and schedule savings. For a discussion of the design and detailing of wood-frame shaft walls, see the WoodWorks publication, *Shaft Wall Solutions for Wood-Frame Buildings*.

FIGURE 15:
Example wood-frame shaft wall detail



For multiple reasons, including differential material movement and seismic compatibility issues, a best practice detail when utilizing masonry shaft walls in wood-frame buildings is to provide isolation between the two materials. This is typically accomplished in the form of a small gap. When using this detail, illustrated in Figure 16, the floor/roof framing and diaphragm are not tied to the shaft wall, and wood beams or bearing walls are installed just inboard of the masonry walls to support the ends of the wood framing members.

FIGURE 16:
Example details at masonry shaft to wood-frame floor or roof with gap

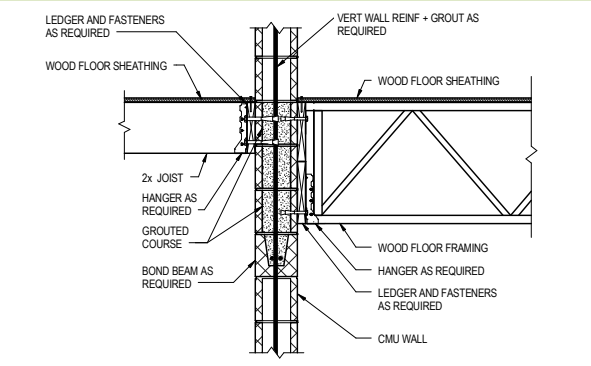


Source: Schaefer

The one exception to this detail is to directly connect the wood framing to the masonry walls only at the door threshold in order to avoid a small difference in floor elevation. This requires attention to detail and the recognition that a small amount of floor slope may occur at this location because the floor is attached to both the masonry wall and adjacent wood-frame walls or support beams. See Figure 17 for an example detail of this condition. Alternatively, the wood floor can be kept independent of the masonry shaft walls and a plate provided across the threshold to cover the gap and account for small amounts of differential movement.

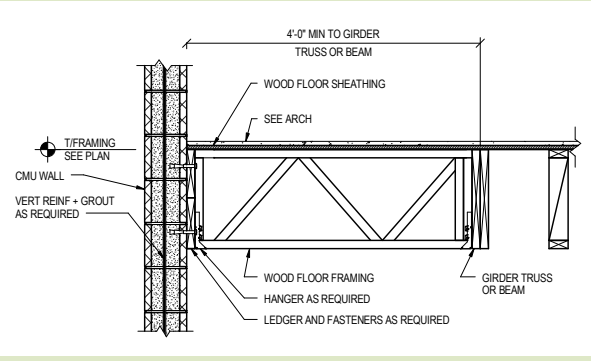
Alternatively, some engineers choose to attach the wood floor or roof system to the masonry shaft walls not only at the door thresholds but all around the shaft. Under this condition, in order to avoid differential floor elevations depending on whether the floor is spanning parallel or perpendicular to the masonry, a detail may include the integration of support beams/girder trusses parallel with the shaft wall, allowing all framing members around the perimeter of the shaft to span to and be attached to the wall. An example of this condition is shown in Figure 18.

FIGURE 17:
Example detail at masonry shaft to wood frame floor or roof with direct connection



Source: Schaefer

FIGURE 18:
Example detail at masonry shaft to wood-frame floor or roof with direct connection where framing typically spans parallel to shaft wall



Source: Schaefer

Mechanical/Electrical Plumbing (MEP)

It is common for MEP items such as water lines, waste drain lines, electrical conduit, mechanical ducts, sprinkler lines, etc. to start with a supply source at the base or roof of the structure and extend vertically throughout, with horizontal runs splicing off the main vertical runs. However, as with differential movement between wood framing and brick veneer or masonry walls, the ducts/conduit/pipe materials used in MEP seldom shrink. Rather, depending on the temperature during installation, most have a tendency to increase slightly in length. The result is a potential situation where the wood-frame building has shrunk, vertical MEP lines have expanded up, and horizontal tees coming off the vertical lines and running through wood-frame partition walls have reduced in slope. See the images on this page for examples of this condition.

One approach that can significantly reduce the effects of wood shrinkage on MEP elements is to wait as long as possible to install vertical runs after completion of framing.

Plumbing vertical line with horizontal tees through wood stud partition

Photo: Armchair Builder

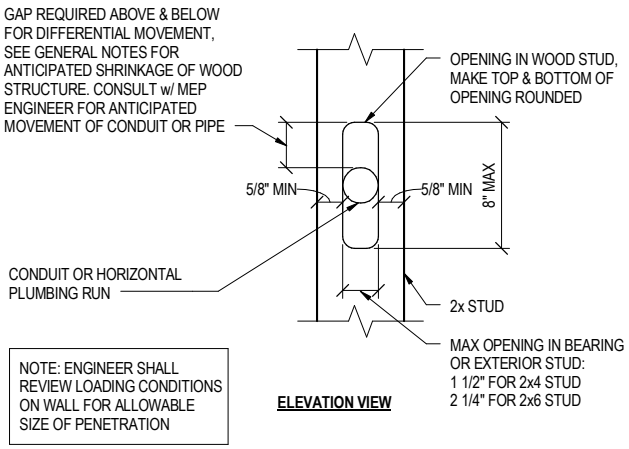
This allows the framing to come closer to its EMC and allows more dead loading of the structure (which helps close small gaps) prior to MEP installation.

Plumbing pipe failure due to lack of shrinkage accommodation in adjoining wood stud hole

Specifying the cumulative shrinkage that needs to be accounted for on each floor level in the contract documents or on the drawings will let the MEP subcontractors know to make appropriate accommodations in their components and/or connections. For MEP items running through stud walls, one method of addressing differential movement is to oversize the holes in studs where pipes/conduit run horizontally. Holes should be vertically slotted so their width is no more than necessary but their height allows up to the anticipated building shrinkage at each level without causing the pipe/conduit to come in contact with the top of the hole. The project's structural engineer should be consulted on allowable hole sizes, especially if the wall is load bearing. Figure 19 illustrates options for this solution.

FIGURE 19:

Example detail and photo showing the hole in a wood stud added to accommodate shrinkage around plumbing



Sources: (left) Schaefer; (right) Louisiana-Pacific Corporation

An alternative would be to install an expansion or slip joint in the vertical run of pipes/conduits/ducts. These connections permit vertical movement in the MEP items while allowing them to remain functional and avoid issues with wood building shrinkage around them. As the horizontal MEP items move down with the framing as it shrinks, this vertical movement is accommodated by the expansion/slip joint connection. The connections are located strategically at various positions in the vertical MEP runs, and sized to reflect the total anticipated accumulated wood shrinkage in the building. Examples of expansion/slip connections are shown below.

Photos (left to right): Copper pipe expansion joint (Metraflex), PVC expansion joint (IPEX USA LLC), PVC expansion joint (Fernco)

Structural Connections

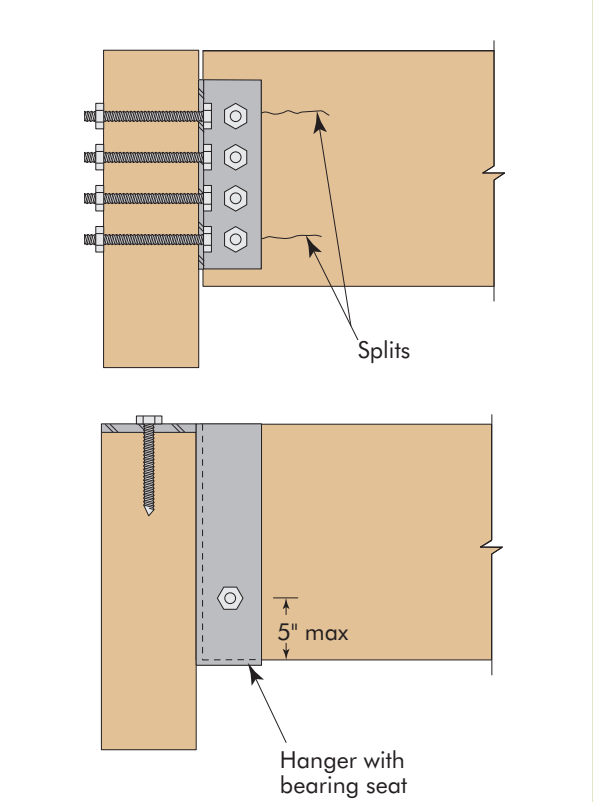
Shrinkage in multi-story wood-frame structures can impact structural framing members, especially connections. This section will address two different connection considerations: heavy timber members and light-frame members.

Beam Connections

Although not specific to multi-story buildings, shrinkage in connections of beams and heavy timber truss chords including solid sawn, glulam and SCL should be considered and detailed appropriately. As noted, shrinkage occurs in the cross-grain dimension of wood members. In large cross-sections such as solid sawn or glulam beams and columns, it is important to know how shrinkage will occur and detail the connection to avoid restraint of the shrinkage. Figure 20 illustrates the effects of a connection with larger diameter fasteners installed near both the top and bottom of a wood member. Horizontal shear splits/cracks can form along the member if the shrinkage is restrained between rows of fasteners. In order to avoid this, recommended details utilize fasteners grouped together only near the bottom of the connection or using only one row of fasteners along the grain of the member. For more information on recommended connection details, see APA's document T300, *Glulam Connection Details,* and the American Wood Council (AWC) publication WDC 5 – *Heavy Timber Construction.*

In addition to detailing to avoid shrinkage restraint at connections, Table 12.5.1F of AWC's 2015 National Design Specification® (NDS®) for Wood Construction specifies maximum allowable distances between outermost fasteners in glulam members.

FIGURE 20:
Heavy timber/glulam beam connection details; top shows potential shrinkage cracks; bottom illustrates a more effective design approach



Source: APA – The Engineered Wood Association, Document T300 Glulam Connection Details

Lateral and Uplift Connections

For light-frame, multi-story buildings, consideration should be given to shrinkage effects on uplift and overturning restraint systems. Connections such as shear wall end holdowns and uplift floor-to-floor straps rely on being installed tight and remaining in this condition in order to resist these overturning and uplift tension forces as soon as the loads are applied. However, as shrinkage occurs in wood-frame buildings, slack in these systems can be introduced, creating the potential for building movement prior to beginning tension restraint

engagement. See the image below for an example of this condition. If issues such as this exist, reengagement of the tension systems is required, either through re-tightening the nuts on threaded rods (and periodically checking that they remain tight) or installation of new tension systems which can accommodate shrinkage as discussed below.

Gap between wood plate and tension-threaded rod without shrinkage compensation

Photo: Simpson Strong-Tie

There are several methods of detailing to avoid these potential issues. First, when using continuous threaded rod tie-down systems at the ends of shear walls or to resist uniform roof uplift, integrated shrinkage compensation or take-up devices can be used. Many hardware manufacturers produce variations of a similar concept—i.e., hardware incorporated with continuous threaded rods, which allows connections at each floor to move with a wood building as it shrinks while keeping the threaded rod fully engaged in tension at all times.

Threaded rod tie-down with shrinkage compensation devices

Photos: (left) Simpson Strong-Tie; (right) CLP Systems/Earthbound

For uniform roof uplift, utilizing floor-to-floor connections that have integral shrinkage take-up devices is one way to minimize issues with shrinkage. An example is shown below.

Floor-to-floor uplift connector with integral shrinkage take up device

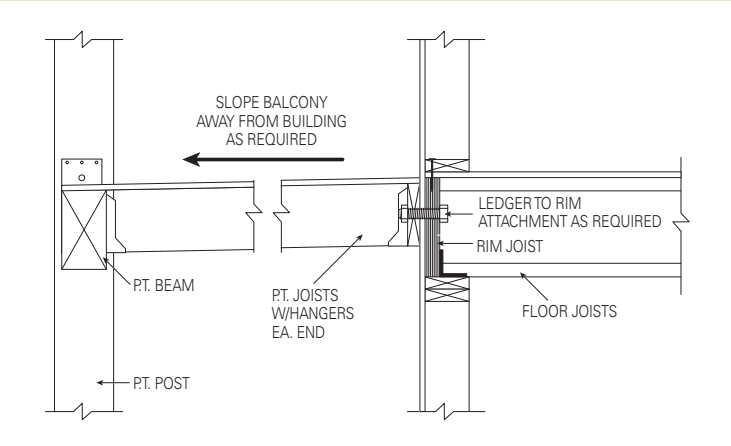
Photo: Simpson Strong-Tie

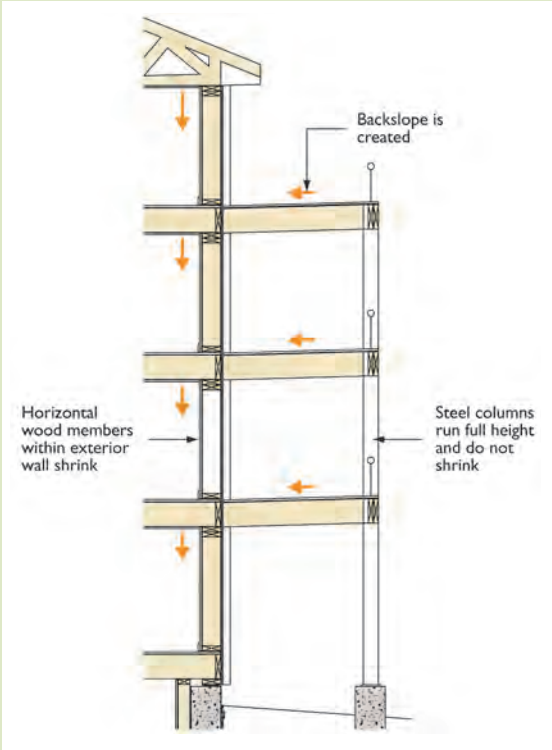
Balcony/Deck Support

Although cantilever balconies are common in mid-rise wood-frame construction, some balconies are supported on exterior columns. The potential for shrinkage must be addressed for exterior decks supported by wood-frame walls on the inner edge of the balcony and exterior walls/posts on the outer edge. When utilizing columns to support the outer edge of a balcony attached to a wood-frame building, the slope of the balcony should be taken into account. If the balcony is originally designed to slope slightly away from the building, the balcony could rotate back toward the building as shrinkage occurs in the wood framing but not the exterior balcony columns. This could result in less balcony slope than planned or, worst case, the balcony could end up with a negative slope draining water back toward the building. See Figure 21 for an example of this condition.

Solutions to this include supporting balconies on a row of columns just outboard of the exterior wall (same materials and support conditions as the columns at the balconies' outer edge), supporting all balcony edges with wood framing and ensuring that the balcony shrinkage zone at each level matches the building's, utilizing cantilever balconies, or accommodating shrinkage in the initial slope in the balconies such that they would still drain away from the building even if all anticipated building shrinkage occurs. If utilizing the option of a row of columns just outboard of the exterior wall (and potentially not attaching the balcony to the exterior wall), care should be taken to ensure that any differential elevation between the deck surface and adjacent interior floor surface complies with code requirements.

FIGURE 21:
Example balcony column support detail (left) and balcony slope issues due to lack of shrinkage accommodation (right)





Sources: (left) Multi-Story Wood-Frame Shrinkage Effects on Exterior Deck Drainage: A Case Study by Martin and Anderson, Wood Design Focus; (right) RDH Building Science Inc.

Conclusion

Shrinkage in multi-story wood-frame buildings is not a new phenomenon nor is it overly complex to address. It requires an awareness of how and why wood shrinks, close attention when selecting and specifying materials and details, proper material care on the jobsite, and installation that closely adheres to the construction drawings.

When addressing wood shrinkage, the entire design and construction team should be involved in the solution. In multi-story buildings, for example, some of the details used may differ from those traditionally seen by contractors and other design trades. Regular, on-site observations by the design team, owner's representative and third party inspectors to review shrinkage-accommodating details as installed, and to check items such as flashing gaps, sill elevation and use of appropriate shrinkage-compensating measures will help to ensure that performance matches design intent. In order to have successful building shrinkage performance, proper detailing must lead to proper installation.

Education may also be necessary for the building owner, contractor and subcontractors to understand the potential issues and how to avoid them. Once fully understood, accommodating shrinkage simply becomes another design criteria. For copies of the details in this paper, email the WoodWorks project support help desk at help@woodworks.org.

End Notes:

1. *Wood Handbook: Wood as an Engineering Material,* United States Department of Agriculture Forest Products Laboratory, 2010
2. American Softwood Lumber Standard PS 20-15
3. *Monitoring of Vertical Movement in a 5-Storey Wood Frame Building in Coastal British Columbia*, Jieying Wang and Chun Ni (2014 World Conference on Timber Engineering proceedings); *Impact of Moisture and Load on Vertical Movement of a Simulated Platform Frame Wood Structure*, Jieying Wang and Luke King, Journal of Testing and Evaluation; *Field Measurements of Moisture in Building Materials and Assemblies: Pitfalls and Error Assessment*, Donald M Onysko, Christopher Schumacher and Peter Garrahan.
4. *Multi-Story Wood-Frame Shrinkage Effects on Exterior Deck Drainage: A Case Study,* Wood Design Focus, Zeno Martin, P.E. and Eric Anderson, P.E., S.E.

Disclaimer: The information in this publication, including, without limitation, references to information contained in other publications or made available by other sources (collectively "information") should not be used or relied upon for any application without competent professional examination and verification of its accuracy, suitability, code compliance and applicability by a licensed engineer, architect or other professional. Neither the Wood Products Council nor its employees, consultants, nor any other individuals or entities who contributed to the information make any warranty, representative or guarantee, expressed or implied, that the information is suitable for any general or particular use, that it is compliant with applicable law, codes or ordinances, or that it is free from infringement of any patent(s), nor do they assume any legal liability or responsibility for the use, application of and/or reference to the information. Anyone making use of the information in any manner assumes all liability arising from such use.

NorthWest Colorado Consultants, Inc.
Geotechnical / Environmental Engineering • Materials Testing

December 26, 2025

FV Basecamp, LLC
c/o May Riegler Properties
Gaby Riegler
2201 Wisconsin Avenue, Suite 200
Washington D.C. 20007

gaby@mayriegler.com

Job Number: 20-11961

Subject: Geotechnical Recommendations Review, Proposed Steamboat Basecamp Multi-Family Building, Lot 3, Steamboat Basecamp Remainder Subdivision, Steamboat Springs, Colorado.

Gaby,

This report presents the results of a Geotechnical Recommendations Review for the proposed Steamboat Basecamp Multi-Family Building to be constructed within Lot 3 of the Steamboat Basecamp Remainder Subdivision in Steamboat Springs, Colorado. A Geotechnical Recommendations report was prepared by NWCC, Inc. (NWCC) for this site under this job number, dated July 27, 2022. A copy of the original Geotechnical Recommendations (GR) report is attached. This review has been completed in accordance with NWCC's recommendations outlined in the Limitations section of the previously prepared report.

Proposed Construction: NWCC understands a five-story multi-family building will be constructed within Lot 3 of the Steamboat Basecamp Remainder Subdivision. NWCC has assumed the lower levels will be constructed with concrete slab-on-grade floor systems constructed near or above the existing ground surface.

For design purposes, NWCC has assumed that building loads will be light to moderate typical of this type of residential construction. If loadings or conditions are significantly different from those above, NWCC should be notified to reevaluate recommendations in this report.

Foundation Design Recommendations: Based on our review of the GR report (NWCC, 2022), the proposed building will be constructed near test pits 1 through 4 and the parking area near test pits 5, 6, 7 and 9.

The subsoil conditions encountered in Test Pits 1 through 4 consisted of 12 to 18 inches of existing topsoil and fill materials overlying natural clays to depths of 2 ½ to 4 feet below the existing ground surface (bgs), Natural sands and gravels were encountered below the clays and extended to the maximum depth investigated.

NWCC recommends the footings be constructed on the natural sands and gravels or properly compacted structural fill materials placed over the natural sands and gravels, as outlined in the Foundation Recommendations section of the previous GR report. NWCC anticipates the natural sands and gravels will be encountered 2 ½ to 4 feet below the existing ground surface. The footings can be designed using an allowable soil bearing pressure of 3,000 psf, as indicated in the GR report. A minimum deadload is not required for footings placed on the natural sands and gravels or structural fill materials placed over the natural sands and gravels after all of the clays are removed. NWCC must observe the bearing soils and also test any structural fill materials prior to construction of the footings.

Based on the anticipated geologic site conditions, NWCC recommends a **Site Class C** be used in the structural design calculations in accordance with Table 20.2-1 in Chapter 20 of ASCE7-22.

Additional Foundation Recommendations: No modifications to recommendations for the design and construction of concrete slab-on-grade floor system, foundation walls and retaining structures and surface drainage outlined in the GR report are required. These recommendations should also be incorporated into the design and construction of the proposed building .

Pavement Section Recommendations: The subsoil conditions encountered in Test Pits 5, 6 and 7 consisted of 12 to 18 inches of existing topsoil and fill materials overlying natural clays to a depth of 3 feet below the existing ground surface (bgs). The subsoil conditions encountered in Test Pit 9 consisted of 3 feet of existing topsoil and fill materials overlying natural clays to a depth of 11 feet below the existing ground surface (bgs). Natural sands and gravels were typically encountered below the clays and extended to the maximum depths investigated. The Pavement Section Recommendations outlined in the GR report should be used in the design and construction of the parking area for the building.

Alternate Foundation Recommendations: NWCC understands that the general contractor has proposed a post-tensioned (PT) concrete slab-on-grade system be utilized for the building. Based on the required turn-down depth, 48 inches, it is anticipated that natural sands and gravels would be encountered in the excavations for the exterior beams. It would be likely that the soils in the excavations for the beams would cave and the beams would have to be formed in order to prevent caving of the sidewalls. In addition, all of the existing fill materials would have to be removed and replaced with properly compacted structural fill materials. If all of the natural clays are not also removed, and/or clay fill materials are used under the PT slabs, the PT slabs would need to be designed for differential movements due to swelling soils. NWCC does not believe a PT slab

foundation system would be more economical than a conventional spread footing with foundation walls constructed on the natural sands and gravels or structural fill materials.

If a PT slab foundation is opted for, NWCC can work with the designer to provide the required soil design parameters for this type of foundation.

Limitations: The recommendations provided in this report are based on the soils encountered at this site and NWCC's understanding of the proposed construction. NWCC believes this information gives a high degree of reliability for anticipating behavior of the proposed structures; however, NWCC's recommendations are professional opinions and cannot control nature, nor can they assure the soil profiles beneath those or adjacent to those observed. No warranties expressed or implied are given on the content of this report.

Expansive soils were encountered at this site. These soils are stable at their natural moisture content but can shrink or swell with changes in moisture. The behavior of expansive soils is not fully understood. The swell or consolidation potential of any site can change erratically both in lateral and vertical extent. Moisture changes also occur erratically, resulting in conditions which cannot always be predicted. Recommendations presented in this report are based on the current state of the art for foundations and floor slabs on expansive soils.

As noted previously, the owner and any future owners must be made aware there is a risk in construction on these types of soil. Performance of the structures will depend on following the recommendations and proper maintenance after construction is complete. As water is the main cause for volume change in the soils, it is necessary that the changes in moisture content be kept to a minimum. This requires judicious irrigation and providing positive surface drainage away from the structures. Any distress noted in the structures should be brought to the attention of NWCC.

This report is based on the investigation at the site described and on the specific anticipated construction as stated herein. If either of these conditions is changed, the results would also most likely change. Therefore, NWCC strongly recommends that our firm be contacted prior to finalizing the construction plans so that we can verify our recommendations are being properly incorporated into the construction plans.

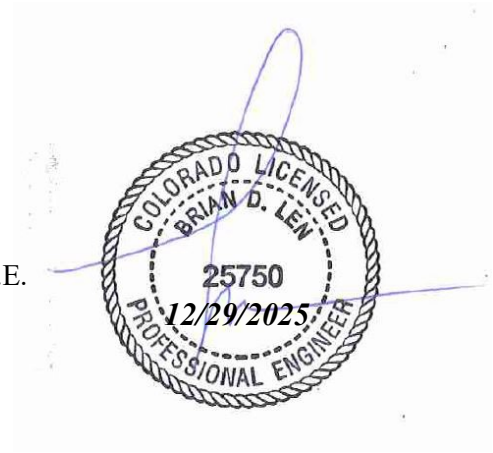
Man-made or natural changes in the conditions of a property can also occur over time. In addition, changes in requirements due to state-of-the-art knowledge and/or legislation do occur from time to time. As a result, the findings of this report may become invalid due to these changes. Therefore, this report is subject to review and not considered valid after a period of 3 years or if conditions as stated above are altered. It is the responsibility of the owner or his representative to ensure that the information in this report is incorporated into the plans and/or specifications and construction of the project.

If you have any questions regarding this report or if NWCC may be of further service, please do not hesitate to contact us.

Sincerely,
NWCC, INC.

Timothy S. Travis, P.E.
Senior Project Engineer

Reviewed By Brian D. Len, P.E.
Principal Engineer



NorthWest Colorado Consultants, Inc.

Geotechnical / Environmental Engineering • Materials Testing

July 27, 2022

FV Basecamp, LLC
c/o May Riegler Properties
Gaby Riegler
2201 Wisconsin Ave., Suite 200
Washington DC 20007

Job Number: 20-11961

Subject: Geotechnical Recommendations, Steamboat Basecamp Townhomes, 1901 Curve Plaza, Steamboat Springs, Colorado.

Gaby,

As requested, NWCC, Inc. (NWCC) has completed this Geotechnical Recommendations report for the Steamboat Basecamp Townhomes to be constructed at 1901 Curve Plaza in Steamboat Springs, Colorado. NWCC previously completed a Supplemental Subsurface Investigation and Geotechnical Recommendations report for Lots 1 and 2 of the Worldwest Subdivision under this job number and dated March 15, 2021.

Proposed Construction: Based on our discussions with the client and structural engineer, as well as a review of the plans provided, NWCC understands the Steamboat Basecamp Townhomes will be constructed in the southeast portion of the property.

The new Steamboat Basecamp Townhomes will consist of a six townhome buildings with three to seven units in each building. Each building will consist of a four-story wood framed structure with a lower level concrete slab floor. The lower level floor will consist of either a structural floor over a void or a concrete slab-on-grade floor system placed near or slightly above the existing ground surface.

An outdoor covered pole barn will be constructed in the northeast corner of the property. The pole barn will consist of a timber framed post and beam structure with a concrete slab floor system. A one-story wood framed restaurant building with a concrete slab floor system will be constructed southwest of the pole barn structure.

Subsurface Conditions: Thirteen test pits were excavated on July 12, 2022 in the area of the proposed townhome buildings, outdoor covered pole barn and restaurant building. A site plan showing the location of the recently excavated test pits is presented in Figure #1. The building corners had not been staked at the time of excavation of the test pits and the locations were determined by pacing from the existing building and foundations under construction for the Steamboat Basecamp Apartments project. The locations of several test pits were surveyed at the time of excavation; however, the survey data was not available at the time of this report.

The subsurface conditions encountered in the test pits were variable and generally consisted of variable layers of fill and topsoil materials overlying natural clays and natural sands and gravels. Graphic logs of the exploratory test pits are presented in Figures #2 and #3. The associated Legend and Notes are presented in Figure #4.

Sand and gravel fill materials were encountered at the ground surface in test pits 4, 5, 12 and 13 and ranged from 6 to 12 inches in thickness. A thin layer of topsoil and organic fill materials was encountered at the ground surface in test pits 1, 2, 3, 6, 7, 8, 9, 10 and 11. The topsoil and organic fill materials were 3 to 6 inches in thickness. Clay fill materials were encountered below the topsoil and organic fill materials or sand and gravel fill materials in all of the test pits with the exception of test pits 4 and 5. The clay fill materials were sandy with occasional gravels and debris, low to highly plastic, medium stiff to soft, moist and brown in color.

A layer of natural topsoil and organic materials was encountered below the sand and gravel fill materials in test pits 4 and 5 and the layer ranged from approximately 4 to 12 inches in thickness.

Natural clays were encountered below the fill materials and natural topsoil and organic materials in all of the test pits at depths ranging from 1 to 6 feet bgs. The natural clays extended to depths ranging from 2½ to 13 feet below the existing ground surface (bgs). The natural clays were typically 1 to 2 feet in thickness in the southeast portion of the site near Townhome Buildings 2, 3, 4, 5 and 6. The natural clays were typically 4 to 9 feet in thickness in the northeast and east-central portion of the site near Townhome Building 1 and the pole barn and restaurant buildings. The natural clays were slightly sandy to sandy, moderately to highly plastic, stiff, moist and brown in color. Swell-consolidation tests conducted on samples of the natural clays from the previous investigations indicate the clays will exhibit a moderate to high swell potential when wetted under a constant load.

Natural sands and gravels were encountered below the natural clays in all of the test pits. The natural sands and gravels were encountered at depths of 2½ to 3½ feet below the existing ground surface in test pits 1 through 7 in the southeast portion of the site near Townhome Buildings 2 through 6. The natural sands and gravels were encountered at depths of 11 to 13 feet bgs in the area of Townhome Building 1, and 9 to 10 feet bgs in the area of the pole barn and the restaurant. The natural sands and gravels were silty to slightly clayey, fine to coarse grained with cobbles and small boulders, very low to non-plastic, dense, moist and brown to gray in color.

NWCC recommends a **Site Class C** designation be used in structural design calculations in accordance with Table 20.3-1 in Chapter 20 of ASCE 7.

Groundwater was not encountered in the test pits at the time of excavation.

Foundation Recommendations: Based on a review of the previous reports and the subsurface conditions encountered in the test pits recently excavated at the site, NWCC anticipates that the natural sands and gravels will be encountered from 2 to 5 feet bgs in the area of Townhome Buildings 2 through 6. NWCC

anticipates the natural sands and gravels will be encountered at a depth of 11 to 13 feet bgs in the area of Townhome Building 1, and 9 to 10 feet bgs in the area of the pole barn and restaurant building.

Due to the highly variable depth of the existing fill materials and the swell potential of the natural clays, NWCC believes the most economically feasible building foundation system, for the buildings where the natural sands and gravels are situated within 5 to 6 feet of the existing ground surface, will consist of footings placed on the natural sands and gravels or on properly compacted structural fill materials placed over the natural sands and gravels after all of the existing fill materials and underlying topsoil and organic materials, and natural clays are removed. Due to the moderate to high swell potential of the clays, NWCC recommends the clays be removed from beneath all of the footings.

NWCC recommends the footings placed on the natural sands and gravels or on properly compacted, structural fill materials placed over the natural sands and gravels be designed using a maximum allowable soil bearing pressure of 3,000 psf. NWCC recommends structural fill materials placed under the footings consist of a non-expansive granular soil approved by this office. Footings placed on the natural sands and gravels or on non-expansive granular fill placed over the natural sands and gravels will not require a minimum dead load.

Structural fill materials should be uniformly placed in 6 to 8 inch loose lifts and compacted to at least 100 percent of the maximum standard Proctor density, within 2 percent of the optimum moisture content as determined by ASTM D-698. Structural fill materials should extend out from the edge of the footings on a 1(horizontal) to 1(vertical) or flatter slope. The footings should be placed on a maximum of 6 feet of structural fill materials that have been tested and approved by NWCC.

NWCC recommends a modulus of subgrade reaction of 200 pounds per cubic inch may be used for the natural sands and gravels or granular fill materials in the design of the foundations. The allowable bearing capacity of 3,000 psf recommended for the footings may be increased by 1/3 for transient loads.

Alternate Foundation Recommendations: In areas where the removal of all of the existing fill materials and natural clays is not economically feasible (> 6 feet), an alternative deep foundation system for the buildings should be utilized. Alternate deep foundation systems would consist of drilled footings, helical screw piles, micropiles or rammed aggregate piers (RAP) advanced into the natural sands and gravels. High capacity helical or micropiles or pile groups with pile caps will most likely be required for the buildings due to anticipated loadings.

The deep foundation systems will place the bottom of the foundations in a zone of relatively stable bearing soils and eliminate the risk of foundation movement from swell and/or consolidation of the existing fill materials and natural clays.

Drilled Footings: Drilled footings, utilizing larger diameter drilled piers (24 inches or larger), constructed on the natural sands and gravels can be designed using an allowable end bearing pressure of 4,000 psf. Each drilled footing can support an individual column or grade beams supported by a series of piers. The

drilled footings should penetrate a minimum of 12 inches into the natural sands and gravels. Any loose materials should be removed and the bearing soils approved by NWCC, prior to placement of concrete.

Helical Screw Piles: Utilizing a helical screw pile foundation, each column is supported on a single or group of screw piles and the structures are founded on grade beams or pier caps that are supported by a series of piles. Load applied to the piles is transmitted to the natural sands and gravels through the end bearing pressure at the helices of the screw pile. Foundation movement should be less than ½-inch if the following design and construction conditions are observed.

The helical screw pile foundation system should be designed by a qualified engineer, using industry standards and be installed by a licensed/certified installer. If pile groups are required, we recommend a minimum pile spacing of 3 times the largest helix to achieve the maximum capacity of each individual pile. Lateral loads should be resisted using battered piles or tiebacks or through passive soil pressures against foundation walls or grade beams.

We strongly recommend that at least two test piles be advanced at each building site so that the torque versus depth relationships can be established and the proper shaft and helix size and type can be determined. In addition, load testing of the helical screw piles is strongly recommended to verify the design capacity of the piles. Difficult installation may be encountered due to the presence of cobbles and boulders in the fill materials.

A representative of this office should observe the test piles/load test and helical screw pile installations.

NWCC also recommends the following:

- Minimum 6-inch diameter helix;
- Minimum installation torque of 4,000 ft-lbs;
- Upper helix must penetrate minimum of 2 feet into natural sands and gravels;
- Full-time installation observation by a qualified special inspector;
- Review of the Contractor's quality control plan regarding instrumentation calibration and testing, materials QC, and pile installation procedures.

Micropiles: Utilizing a micropile foundation, loads are supported by a group of piles and the structures are founded on grade beams or pier caps. Load applied to the piles is transmitted to the natural sands and gravels through the end bearing pressure at the pile tip. NWCC recommends the micropiles extend a minimum of 5 feet into the natural sands and gravels. Foundation movement should be less than ½-inch if the following design and construction conditions are observed.

Micropile foundation elements are typically designed as proprietary foundation systems. If a micropile foundation system is selected, NWCC should be contacted to coordinate with the micropile contractor/design team during foundation design.

We strongly recommend that at least three test piles be advanced at each building site so that load testing of the micro piles can be conducted to verify the design capacity of the piles. Difficult installation should be anticipated due to the presence of cobbles and boulders. A representative of this office should observe the test piles/load test and micropile installations.

Rammed Aggregate Piers: An alternative deep foundation system would consist of rammed aggregate piers (RAP). The rammed aggregate piers are typically constructed to bridge poor bearing soils, such as the existing fill materials and natural clays encountered at this site, extending down to a suitable bearing layer, the underlying natural sands and gravels. A RAP foundation system should develop an end bearing pressure of at least 4,000 psf for aggregate piers founded in the sand and gravels. A RAP foundation system has the advantage of not only supporting shallow foundation elements, but also supporting floor slab areas and improving the engineering characteristics of the existing fill materials and native soils between the piers, thus decreasing the potential for floor slab movement.

RAP foundation elements are designed as proprietary foundation systems. If a RAP foundation system is selected, NWCC should be contacted to coordinate with the RAP contractor/design team during foundation design.

Concrete Slab-on-Grade Floor Systems: NWCC understands the lower level of each Townhome Building will be constructed with concrete slab floor systems placed near the existing grades.

The natural clays or sands and gravels, excluding any existing fill materials and topsoil and organic materials, are capable of supporting slab-on-grade construction. However, floor slabs present a very difficult problem where swelling materials are present near floor slab elevation because sufficient dead load cannot be imposed on them to resist the uplift pressure generated when the materials are wetted and expand. Based on the moisture-volume change characteristics of the natural clays encountered at this site, NWCC believes slab-on-grade construction may be used, provided the risk of distress resulting from slab movement is recognized and special design precautions are followed.

If slab movement is not tolerable, all of the clays must be removed under the concrete slab-on-grade floor systems. In areas where the natural sands and gravels are deeper and the removal of all of the existing fill materials and natural clays is not economically feasible, structural floors constructed over crawlspace areas or void form materials should be used.

The following measures must be taken to reduce damage, which could result from movement should the underslab clays be subjected to moisture changes.

1) Floor slabs must be separated from all bearing walls; columns and their foundation support with a positive slip joint. NWCC recommends the use of ½-inch thick cellotex or impregnated felt.

2) Interior non-bearing partition walls resting on the floor slabs must be provided with a slip joint, preferably at the bottom, so in the event, the floor slab moves this movement is not transmitted to the upper structure. This detail is also important for wallboard and doorframes and is shown in

Figure #6. This detail can be omitted if all of the clays are removed from beneath the floor slabs and replaced with non-expansive fill materials.

3) A minimum 6-inch gravel layer must be provided beneath all floor slabs to act as a capillary break and to help distribute pressures. Prior to placing the gravel, excavation should be shaped so that if water does get under the slab, it will flow to the low point of the excavation. In addition, all existing fill materials and topsoil and organic materials should be removed prior to placement of the underslab gravels or new granular fill materials. If the removal of all of the existing fill materials and topsoil and organics and replacing with granular fill materials is not economically feasible, we recommend the lower levels be constructed on structural floor systems over crawlspace areas or void form materials.

4) Floor slabs must be provided with control joints placed a maximum of 10 to 12 feet on center in each direction, depending on slab configurations, to help control shrinkage cracking. Locations of the joints should be carefully checked to assure that natural, unavoidable cracking will be controlled. Depth of the control joints should be a minimum of ¼ the thickness of the slab.

5) Underslab soils must be kept as close as possible to their in-situ moisture content. Excessive wetting or drying of these soils prior to placement of floor slab could result in differential movement after slabs are constructed.

6) If fills are required to bring underslab areas to the desired grade, the fill should consist of non-expansive, granular materials. Fill should be uniformly placed and compacted in 6 to 8-inch lifts to at least 95% of the maximum standard Proctor density at or near the optimum moisture content, as determined by ASTM D-698.

Following the above precautions and recommendations will not prevent floor slab movement in the event the clays beneath the floor slabs undergo moisture changes. However, they should reduce the amount of damage if such movement occurs. The only way to eliminate the risk of all floor slab movement is to construct a structural floor over a well-vented crawlspace or void form materials, or remove all of the expansive clays and replace them with non-expansive granular fill materials.

Foundation Walls and Retaining Structures: Foundation walls and retaining structures, which are laterally supported and can be expected to undergo only a moderate amount of deflection, may be designed for a lateral earth pressure computed on the basis of an equivalent fluid unit weight of 45 pcf for imported, free draining granular backfill, 50 pcf for the natural sands and gravels and 55 pcf for on-site clay soils.

Cantilevered retaining structures at the site can be expected to deflect sufficiently to mobilize full active earth pressure condition. Therefore, cantilevered structures may be designed for a lateral earth pressure computed on the basis of an equivalent fluid unit weight of 35 pcf for imported, free draining granular backfill, 40 pcf for the natural sands and gravels and 45 pcf for on-site clay soils.

Foundation walls and retaining structures should be designed for appropriate hydrostatic and surcharge pressures such as adjacent buildings, traffic and construction materials. An upward sloping backfill and/or natural slope will also significantly increase earth pressures on foundation walls and retaining structures and the structural engineer should carefully evaluate these additional lateral loads when designing foundation and retaining walls.

Lateral resistance of retaining wall foundations placed on undisturbed natural soils at the site will be a combination of sliding resistance of the footings on the foundation materials and passive pressure against the sides of footings. Sliding friction can be taken as 0.4 times the vertical dead load. Passive pressure against the sides of the footing can be calculated using an equivalent fluid pressure of 250 pcf. Fill placed against the sides of footings to resist lateral loads should be compacted to at least 100% of the maximum standard Proctor density and near the optimum moisture content.

NWCC recommends imported granular soils for backfilling foundation walls and retaining structures because their use results in lower lateral earth pressures. Imported granular materials should be placed to within 2 to 3 feet of the ground surface. Imported granular soils should be free draining and have less than 7 percent passing the No. 200 sieve. Granular soils placed behind foundation and retaining walls should be sloped from the base of the wall at an angle of at least 45 degrees from the vertical. The upper 2 to 3 feet of fill should be a relatively impervious soil or pavement structure to prevent surface water infiltration into the backfill.

Wall backfill should be carefully placed in uniform lifts and compacted to at least 95 percent of the maximum standard Proctor density and near the optimum moisture content. Care should be taken not to overcompact backfill since this could cause excessive lateral pressure on the walls. Some settlement of deep foundation wall backfill materials will occur even if materials are placed correctly.

Underdrain Systems: If the proposed buildings are constructed with roof drainage systems and the perimeter of the buildings are not subjected to roof runoff, it is NWCC's opinion that perimeter drainage systems will not be required around the buildings.

If roof drainage systems are not placed on the buildings NWCC recommends shallow perimeter drainage systems be installed around each of the exterior building perimeters to direct the roof runoff away from the buildings. This runoff can infiltrate the structures at the foundation level. This water can be one of the primary causes of differential foundation and slab movement.

The shallow drainage systems, if constructed, should be located around each of the building perimeters and be placed and at least 12 inches below interior slab or crawl space grades and a minimum of 24 inches below final grades to provide frost protection. Ideally, the drainage systems should be centered along roof drip-line locations. In locations where roof drip-lines are not present, the drainage systems may be located within 24 inches of foundation walls. Drains should be insulated using 2-inches of rigid polystyrene insulation board in locations higher than 48 inches below final grade to provide protection against freezing.

Perimeter drainage system piping should be constructed using perforated PVC pipe that meets or exceeds ASTM D-3034/SDR 35 requirements to provide satisfactory long-term function and rapid runoff of water.

The holes in the drainpipes should be oriented down between 4 o'clock and 8 o'clock to promote rapid runoff of the water. The drainpipes should be covered with at least 12 inches of free draining gravel and be protected from contamination by a geotextile filter fabric covering of Mirafi 140N subsurface drainage fabric or an equivalent product. The drainpipes should have a minimum slope of 1 percent and be daylighted at positive outfalls that are protected from freezing. If the drainpipes cannot be daylighted, the drains should be led to sumps where the water can be pumped. Multiple daylights or sumps are recommended for the proposed structures. A typical shallow perimeter/underdrain detail is shown in Figure #7.

Caution should be taken when backfilling so as not to damage or disturb the installed drains. NWCC recommends the drainage piping include cleanouts provided at minimum 100-foot intervals, be protected against intrusion by animals at the outfalls and be tested prior to backfilling. NWCC should be retained to provide periodic observations of underdrain construction to verify installations have been accomplished in general accordance with these recommendations. Flow testing of the systems is also highly recommended.

Surface Drainage: Proper surface drainage at this site is of paramount importance for minimizing infiltration of surface drainage into wall backfill and bearing soils, which could result in increased wall pressures, differential foundation, and slab movement. The following drainage precautions should be observed during construction and at all times after the structures have been completed:

1) Ground surface surrounding structures should be sloped (minimum of 1.0 inch per foot) to drain away from structures in all directions to a minimum of 10 feet. Ponding must be avoided. If necessary, raising the top of foundation walls to achieve a better surface grade is advisable.

2) Non-structural backfill placed around structures should be compacted to at least 95% of the maximum standard Proctor density at or near the optimum moisture content to minimize future settlement of the fill. Backfill should be placed immediately after the braced foundation walls are able to structurally support the fill. Puddling or sluicing must be avoided.

3) Top 2 to 3 feet of soil placed within 10 feet of foundations should be impervious in nature to minimize infiltration of surface water into wall backfill.

4) Roof downspouts and drains should discharge well beyond the limits of all backfill. Roof overhangs, which project two to three feet beyond foundation walls, should be considered if gutters are not used.

5) Landscaping, which requires excessive watering and lawn sprinkler heads, should be located a minimum of 10 feet from the foundation walls of the structures or any permanent, unretained cuts. Additionally, large piles of man-made or natural snow should be removed prior to melting within 10 feet of the foundation walls of the structures or any permanent, unretained cuts.

6) Plastic membranes should not be used to cover the ground surface adjacent to foundation walls.

Pavement Section Recommendations: Pavement section recommendations presented below are based on anticipated soil conditions, assumed traffic loadings indicated below, pavement design procedures presented in the AASHTO Guide for Design of Pavement Structures, and our experience with similar sites and conditions in this part of Steamboat Springs. AASHTO pavement design procedures have been adopted and are used by the Colorado Department of Transportation (CDOT). NWCC has assumed the proposed pavement areas will be subjected to automobiles with occasional delivery trucks and with regular trash truck service.

Based on the results of the field and laboratory investigations and our understanding of the proposed construction, it appears the materials to be encountered at proposed pavement subgrade elevations will most likely consist of existing fill materials or natural clays. We have assumed the subgrade materials will consist of compacted clay fill materials or natural clays that generally classified as CL soils in accordance with the USCS, which is the worst-case scenario. NWCC recommends the pavement areas subjected to both truck and automobile traffic, such as at the entrances and roadways through the facility be constructed with a minimum of 4 inches of hot mix asphalt (HMA) overlying a minimum of 4 inches of CDOT class 6 aggregate base course (ABC) and a minimum of 8 inches of subbase aggregates (Pit Run). The pavement areas subjected to automobiles only, such as the parking stalls, can be paved with a minimum of 3 inches of HMS, 4 inches of CDOT class 6 aggregate base course (ABC), and a minimum of 6 inches of subbase aggregates (subbase).

NWCC recommends the areas subjected to heavy truck turning movements, such as the pads in front of the trash dumpsters or loading docks be paved with a rigid pavement section consisting of at least 8 inches of Portland cement concrete (PCC). Sidewalks and outdoor patio areas can be constructed with a minimum of 4 inches of PCC.

NWCC recommends the asphalt pavement material (HMA) consist of an approved "Superpave" mix designed by a qualified, registered engineer. The mix design should be designed using the SX gradation, mixed with PG 58-28 oil or other performance graded asphaltic materials with 75 gyrations. To reduce rutting of the pavement surface in areas where tight turning radius are anticipated, a polymer modified binder (higher grade asphalt cement) can be used. NWCC recommends that PG 64-28 or higher quality binder/cement be used in the top mat of asphalt if rutting of the asphalt is a concern.

The mix should be produced and placed by a qualified contractor and should be compacted to between 92 and 96 percent of the maximum theoretical (Rice) density or at least 92 percent of the maximum Rice density. Quality control activities should be conducted on paving materials at the time of placement.

Base course materials (ABC) should consist of a well-graded aggregate base course material that meets CDOT Class 6 ABC grading and durability requirements and the subbase should consist of well-graded aggregate materials that meet CDOT Class 2 ABC grading and durability requirements.

ABC and subbase materials should be uniformly placed and compacted in 4 to 6-inch loose lifts to at least 95 % of the maximum modified Proctor density and within +/- 2 % of the optimum moisture content as determined by ASTM D1557.

Concrete pavement materials shall be based on a mix design established by a qualified engineer. Concrete should have a minimum 28-day compressive strength of 4,500 psi, be air-entrained with approximately 6 percent air, and have a maximum water/cement ratio of 0.42. Concrete should have a maximum slump of 4 inches and should contain control joints no greater than 10 to 12 feet on center, depending on slab configurations. The depth of the control joints should be at least ¼ of the slab thickness.

Prior to placement of subbase materials for pavement areas or exterior concrete slabs, NWCC recommends that all of the existing fill materials and any debris be removed, and the exposed subgrade materials be moisture conditioned and compacted. Prior to placement of the subgrade fill materials the natural clays should be scarified and recompacted to a depth of 8 inches. The scarified natural clays and subgrade materials should be compacted in 6 to 8 inch lifts to at least 95 % of the maximum standard Proctor density and within +/- 2 % of the optimum moisture content as determined by ASTM D698. The finished subgrade surface, after recompaction, should also be sloped at least 1 percent to avoid ponding and to reduce the potential for wetting and expansion of the subgrade soils. The finished subgrade surface should be proof rolled with a loaded tandem dump truck or loaded water truck and any areas deflecting or rutting should be removed and or stabilized prior to placing the subbase aggregates.

The collection and diversion of surface and subsurface drainage away from the paved areas and exterior concrete slabs is extremely important to the satisfactory performance of these elements. The design of the surface and subsurface drainage features should be carefully considered to remove all water from paved areas and sidewalks/patio areas to prevent ponding of water on and adjacent to these areas.

Limitations: The recommendations provided in this report are based on the subsurface conditions encountered at this site and our understanding of the proposed construction. We believe that this information gives a high degree of reliability for anticipating the behavior of the proposed structures; however, our recommendations are professional opinions and cannot control nature, nor can they assure the soils profiles beneath those or adjacent to those observed. No warranties expressed or implied are given on the content of this report.

Expansive soils were encountered at this site. These soils are not prone to volume changes at their natural moisture content but can consolidate or swell with changes in moisture and loading. The behavior of expansive soils is not fully understood. The swell and/or consolidation potential of any particular site can change erratically both in lateral and vertical extent. Moisture changes also occur erratically, resulting in conditions, which cannot always be predicted. The recommendations presented in this report are based on the current state of the art for foundations and floor slabs on swelling/consolidating soils. The owner should be aware that there is a risk in construction on these types of soils. Performance of the structures will depend on following the recommendations and in proper maintenance after construction is complete. As water is the main cause for volume change in the soils, it is necessary that the changes in moisture content be kept to a minimum; therefore, positive surface drainage should be maintained away from the structures. Any distress noted in the structures should be brought to the attention of this office.

This report is based on the investigation at the described site and on the specific anticipated construction as stated herein. If either of these conditions is changed, the results would also most likely change. Therefore,

NWCC strongly recommends that our firm be contacted prior to finalizing the construction plans so that we can verify that our recommendations are being properly incorporated into the construction plans. Man-made or natural changes in the conditions of a property can also occur over a period of time. In addition, changes in requirements due to state of the art knowledge and/or legislation do from time to time occur. As a result, the findings of this report may become invalid due to these changes. Therefore, this report is subject to review and not considered valid after a period of 3 years or if conditions as stated above are altered.

It is the responsibility of the owner or his representative to ensure information in this report is incorporated into the plans and/or specifications and construction of the project. It is advisable that a contractor familiar with construction details typically used to dealing with the local subsoils and climatic conditions be retained to build the structures.

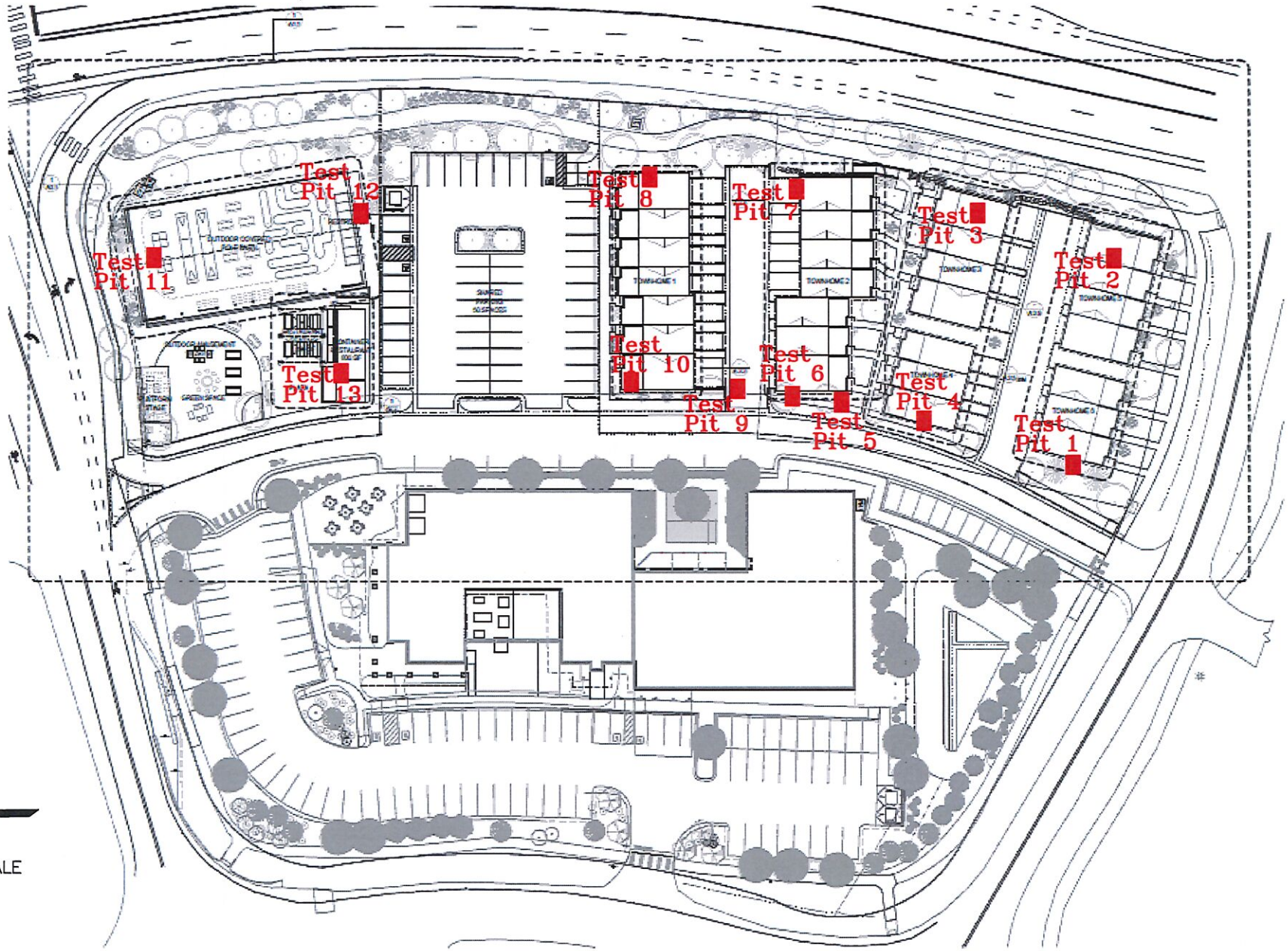
If you have any questions regarding this report or if we may be of further service, please do not hesitate to contact us.

Sincerely,
NWCC, INC.,

Timothy S. Travis, P.E.
Senior Project Engineer

COLORADO LICENSED
BRIAN D. ILEN
25750
PROFESSIONAL ENGINEER

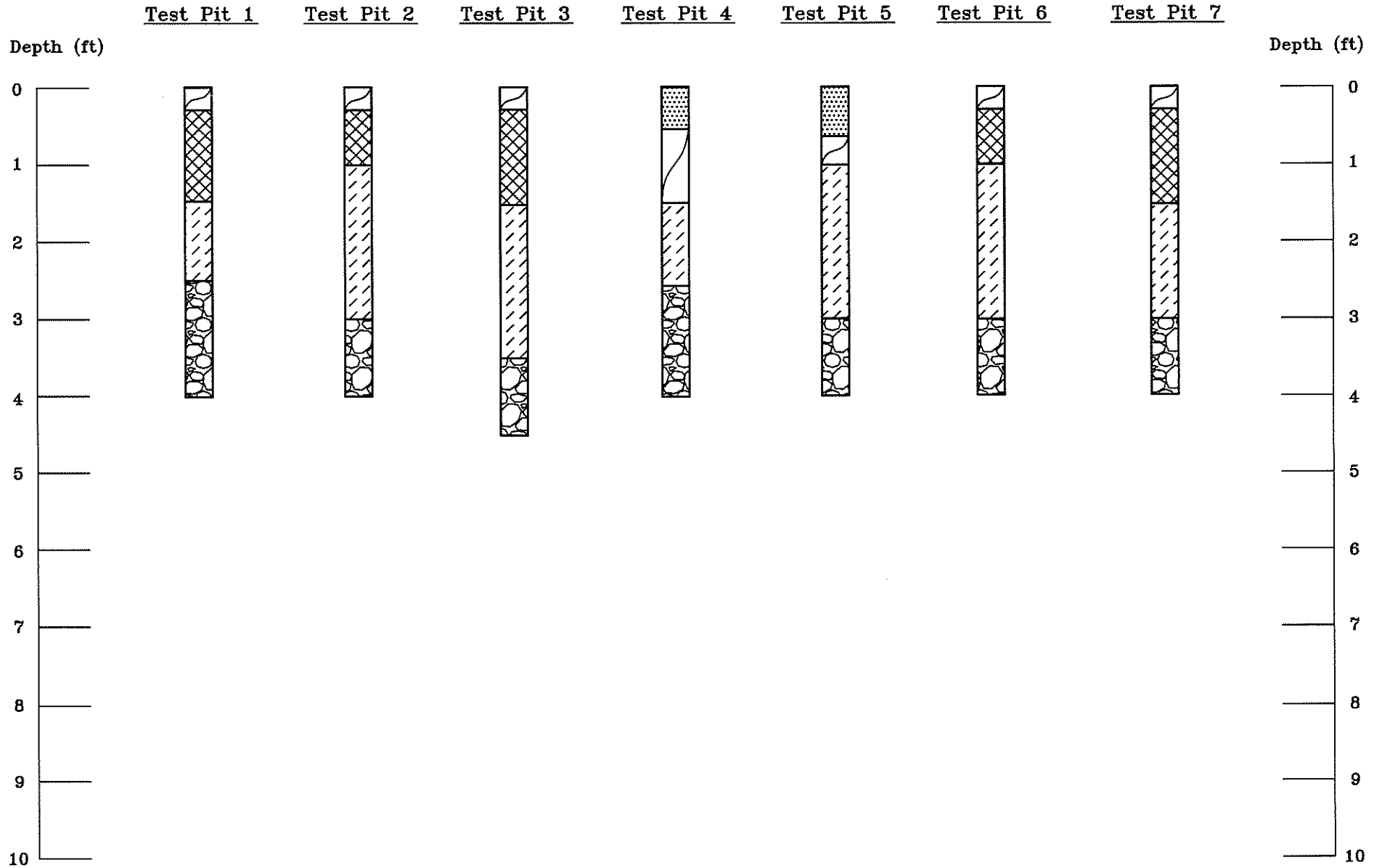
Reviewed by Brian D. Ilen, P.E.
Principal Engineer



A-100-16

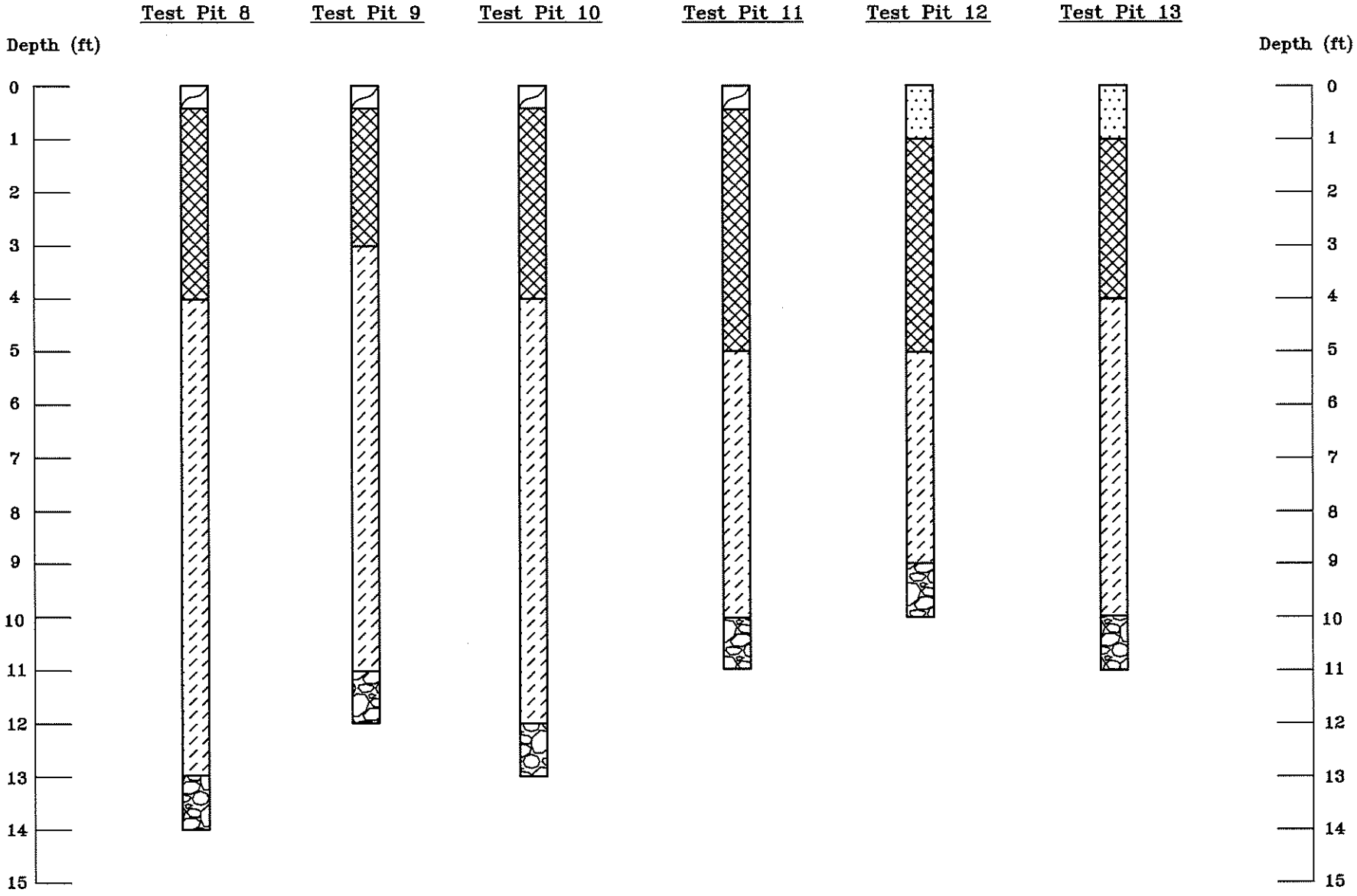
NOT TO SCALE

Title: LOCATION OF TEST PITS		**Date:** 7/13/2022	NWCC North West Colorado Consultants, Inc. Geotechnical / Environmental Engineering - Materials Testing
Job Name: Steamboat Basecamp Townhomes		**Job No.** 20-11961	(970)879-7888- Fax (970)879-7891 2580 Copper Ridge Drive Steamboat Springs, Colorado 80487
LOCATION: 1901 Curve Plaza, Steamboat Springs, Colorado		**Figure** #1	



A-100-17

Title:	LOGS OF EXPLORATORY TEST PITS	Date: 7/13/2022	NWCC North West Colorado Consultants, Inc. Geotechnical / Environmental Engineering · Materials Testing
Job Name:	Steamboat Basecamp Townhomes	Job No. 20-11961	(970)879-7888 • Fax (970)879-7891 2580 Copper Ridge Drive Steamboat Springs, Colorado 80487
LOCATION:	1901 Curve Plaza, Steamboat Springs, Colorado	Figure #2	



Title:	LOGS OF EXPLORATORY TEST PITS	Date: 7/13/2022	NWCC Northwest Colorado Consultants, Inc. Geotechnical / Environmental Engineering - Materials Testing (970)879-7868 - Fax (970)879-7891 2580 Copper Ridge Drive Steamboat Springs, Colorado 80487
Job Name:	Steamboat Basecamp Townhomes	Job No. 20-11961	
LOCATION:	1901 Curve Plaza, Steamboat Springs, Colorado	Figure #3	

A-100-18

LEGEND:

SAND AND GRAVEL FILL: Silty to clayey, low to non-plastic, loose to medium dense, slightly moist and brown in color.

Topsoil and organics.

CLAY FILL: Sandy with occasional gravels and debris, low to highly plastic, medium stiff to soft, moist and brown in color.

CLAY: Slightly sandy to sandy, moderately to highly plastic, stiff, moist and brown in color.

SANDS AND GRAVELS: Silty to slightly clayey, fine to coarse grained with cobbles and small boulders, very low to non-plastic, dense, moist and brown to gray in color.

NOTES:

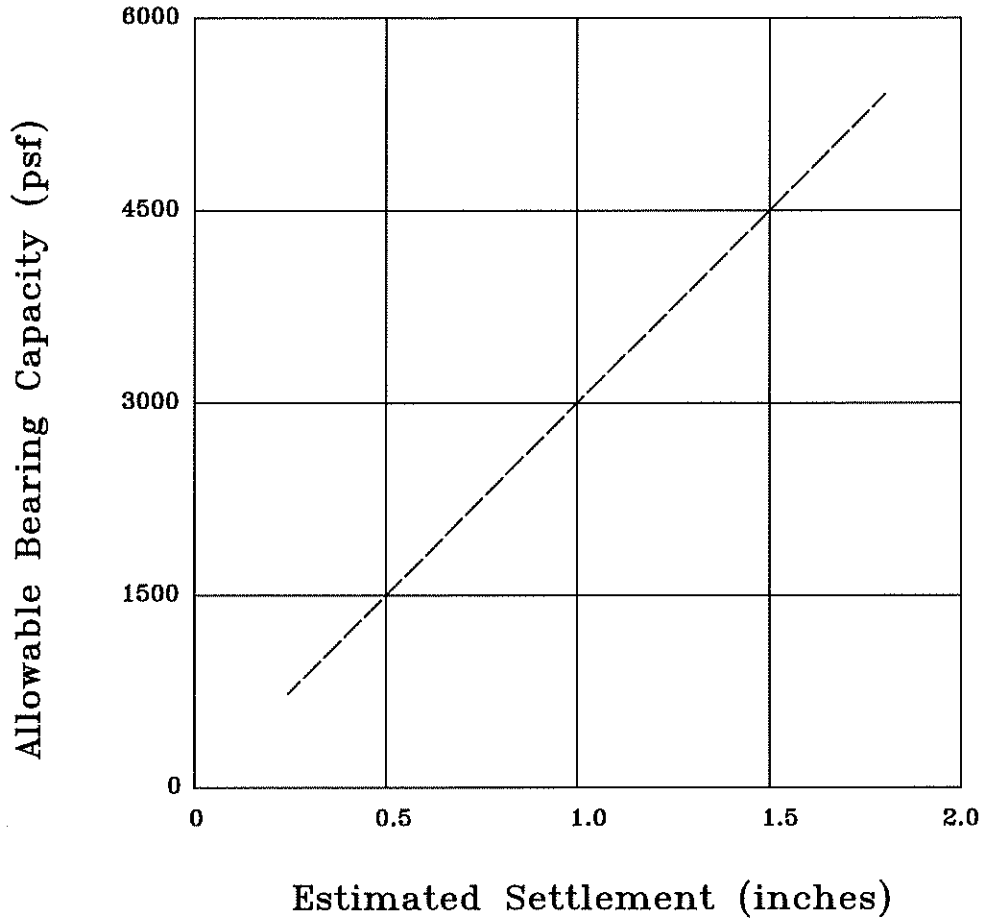
1) Test Pits were excavated on July 12, 2022 with a Trackhoe,

2) Locations of the test pits were determined in the field by pacing from the existing structure.

3) Elevations of the test pits were not measured and logs are drawn to the depths investigated.

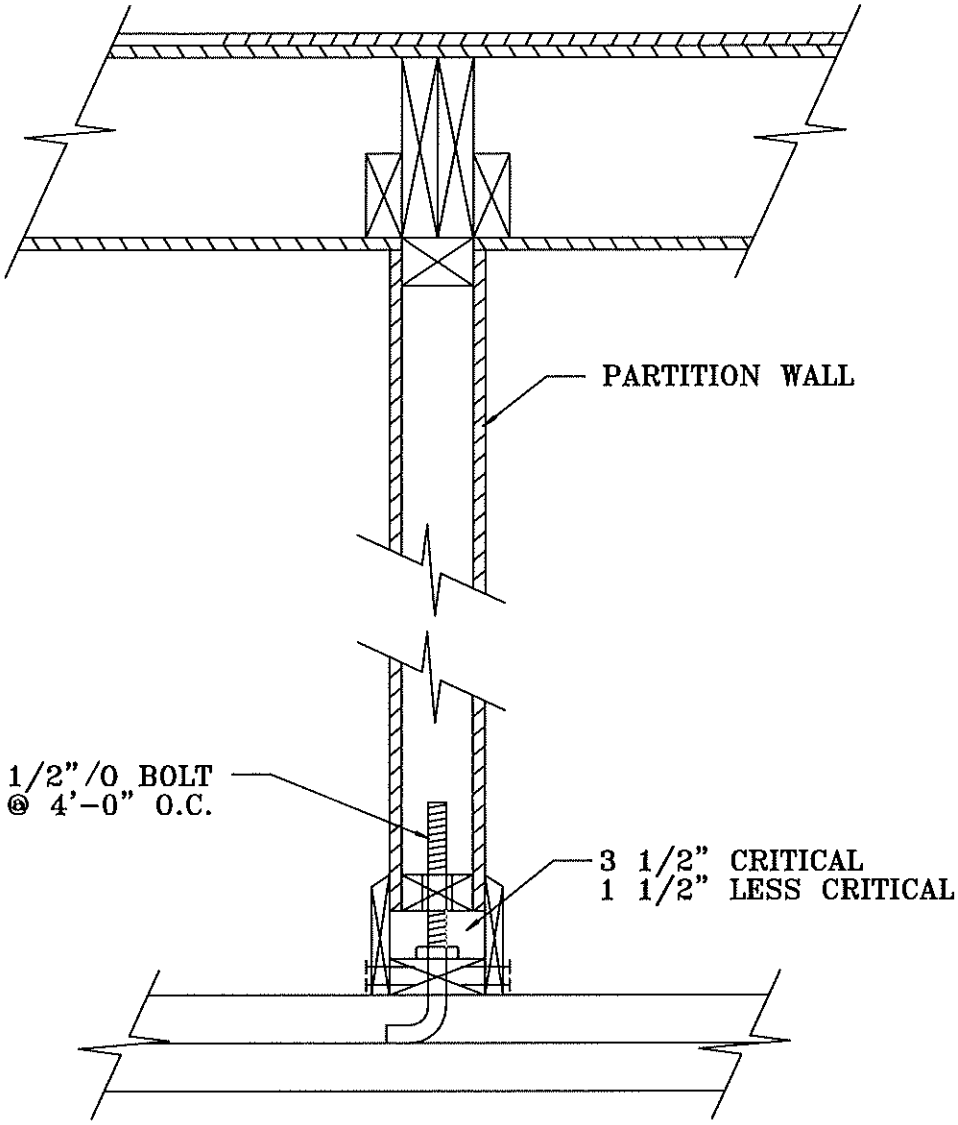
4) The lines between materials shown on the logs represent the approximate boundaries between material types and transitions may be gradual.

Title: LEGEND AND NOTES		Date: 7/15/2022	NWCC North West Colorado Consultants, Inc. Geotechnical / Environmental Engineering - Materials Testing
Job Name:	Steamboat Basecamp Townhomes	Job No. 20-11961	(970)879-7688 · Fax (970)879-7691 2580 Copper Ridge Drive Steamboat Springs, Colorado 80487
Location:	1901 Curve Plaza, Steamboat Springs, Colorado	Figure #4	



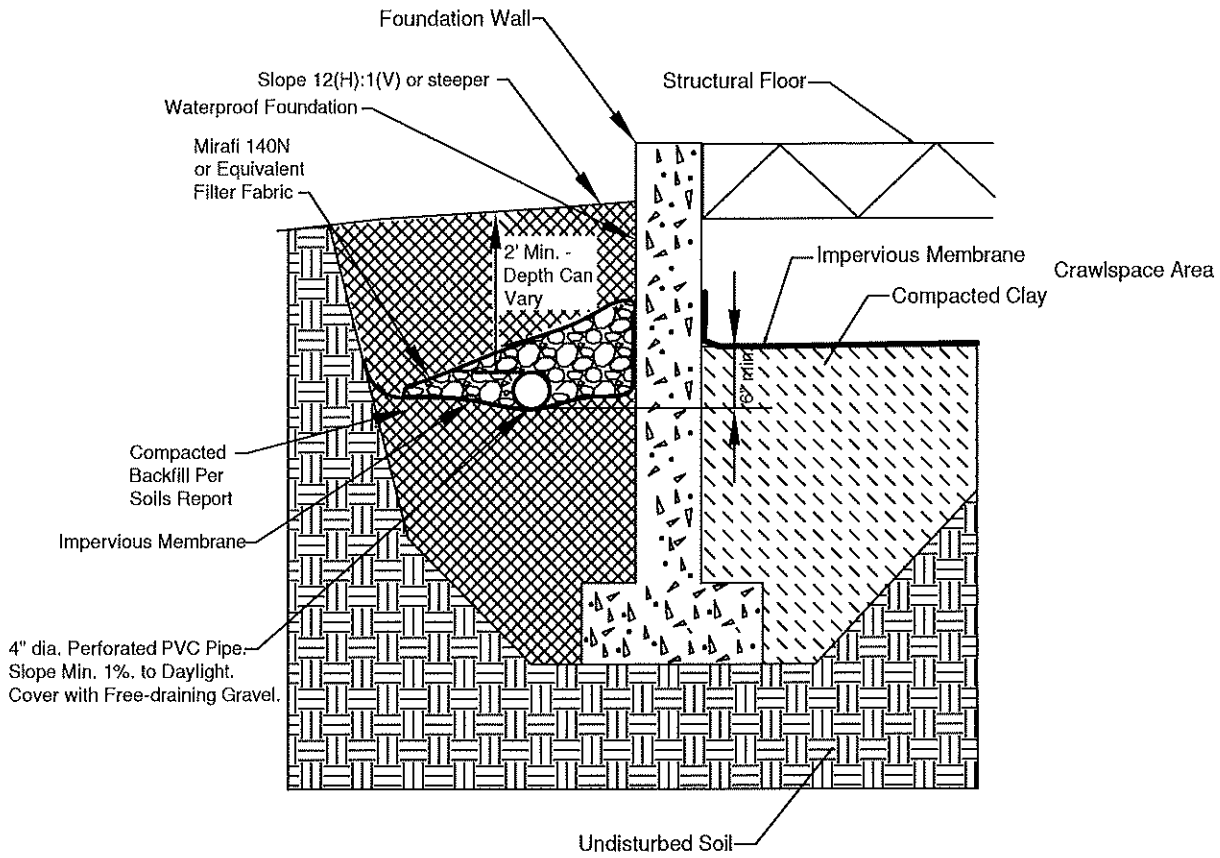
Note: These values are based on footing widths of 1 to 4 feet. If the footing width is to be greater than 4 feet in width, then we should be notified to re-evaluate these recommendations.

Title: BEARING CAPACITY CHART		**Date:** 7/18/2022	NWCC North West Colorado Consultants, Inc. Geotechnical / Environmental Engineering - Materials Testing
Job Name:	Steamboat Basecamp Townhomes	**Job No.** 20-11961	(970)879-7888 · Fax (970)879-7891 2580 Copper Ridge Drive Steamboat Springs, Colorado 80487
Location:	1901 Curve Plaza, Steamboat Springs, Colorado	**Figure** #5	

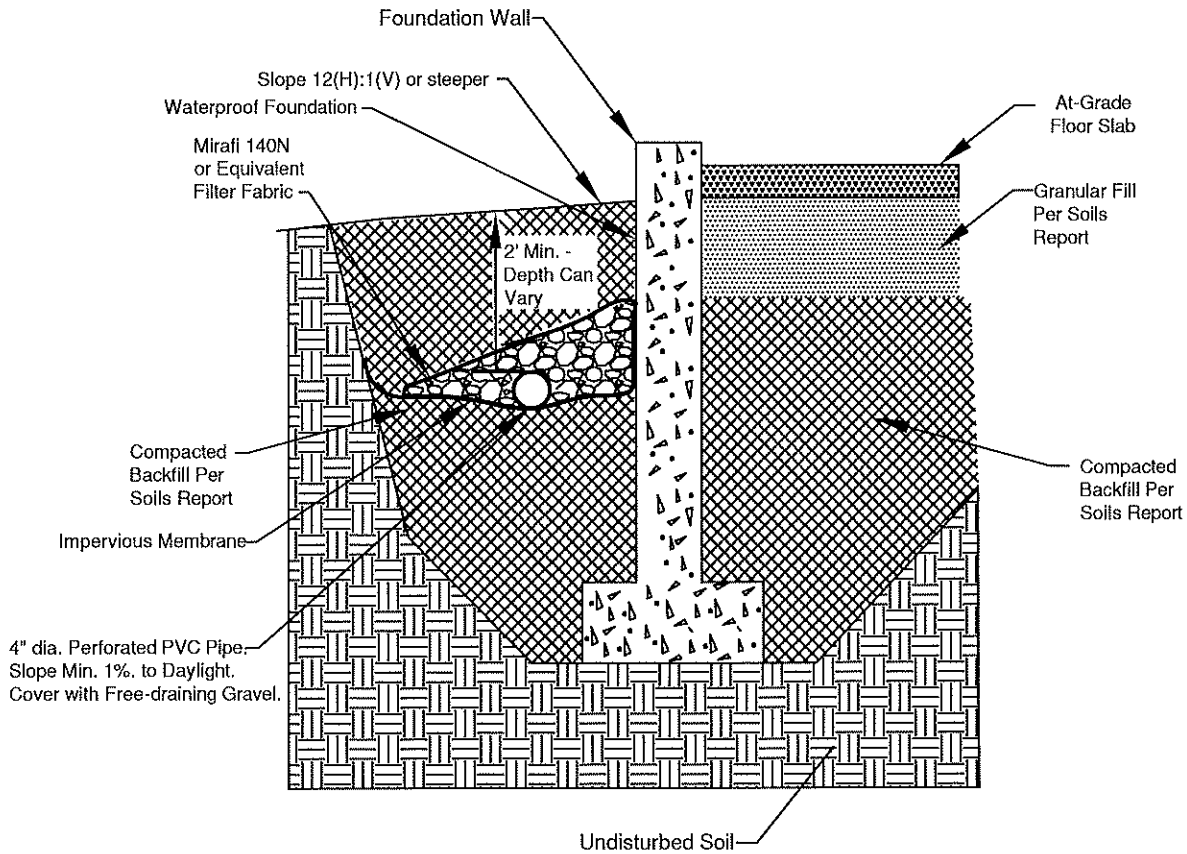


Title: HUNG PARTITION WALL DETAIL		Date: 7/15/2022	NWCC North West Colorado Consultants, Inc. Geotechnical / Environmental Engineering - Materials Testing (970)879-7888 Fax (970)879-7891 2580 Copper Ridge Drive Steamboat Springs, Colorado 80487
Job Name:	Steamboat Basecamp Townhomes	Job No. 20-11961	
Location:	1901 Curve Plaza, Steamboat Springs, Colorado	Figure #6	

Crawlspace



Slab-on-Grade



Title: PERIMETER/UNDERDRAIN DETAIL		**Date:** 7/18/2022	NWCC North West Colorado Consultants, Inc. Geotechnical / Environmental Engineering - Materials Testing
Job Name: Steamboat Basecamp Townhomes		**Job No.** 20-11961	(970)879-7688 · Fax (970)879-7891 2580 Copper Ridge Drive Steamboat Springs, Colorado 80487
Location: 1901 Curve Plaza, Steamboat Springs, Colorado	A-100-22	**Figure** #7	

NorthWest Colorado Consultants, Inc.
Geotechnical / Environmental Engineering • Materials Testing

July 27, 2022

FV Basecamp, LLC
c/o May Riegler Properties
Gaby Riegler
2201 Wisconsin Ave., Suite 200
Washington DC 20007

Job Number: 20-11961

Subject: Geotechnical Recommendations, Steamboat Basecamp Townhomes, 1901 Curve Plaza, Steamboat Springs, Colorado.

Gaby,

As requested, NWCC, Inc. (NWCC) has completed this Geotechnical Recommendations report for the Steamboat Basecamp Townhomes to be constructed at 1901 Curve Plaza in Steamboat Springs, Colorado. NWCC previously completed a Supplemental Subsurface Investigation and Geotechnical Recommendations report for Lots 1 and 2 of the Worldwest Subdivision under this job number and dated March 15, 2021.

Proposed Construction: Based on our discussions with the client and structural engineer, as well as a review of the plans provided, NWCC understands the Steamboat Basecamp Townhomes will be constructed in the southeast portion of the property.

The new Steamboat Basecamp Townhomes will consist of a six townhome buildings with three to seven units in each building. Each building will consist of a four-story wood framed structure with a lower level concrete slab floor. The lower level floor will consist of either a structural floor over a void or a concrete slab-on-grade floor system placed near or slightly above the existing ground surface.

An outdoor covered pole barn will be constructed in the northeast corner of the property. The pole barn will consist of a timber framed post and beam structure with a concrete slab floor system. A one-story wood framed restaurant building with a concrete slab floor system will be constructed southwest of the pole barn structure.

Subsurface Conditions: Thirteen test pits were excavated on July 12, 2022 in the area of the proposed townhome buildings, outdoor covered pole barn and restaurant building. A site plan showing the location of the recently excavated test pits is presented in Figure #1. The building corners had not been staked at the time of excavation of the test pits and the locations were determined by pacing from the existing building and foundations under construction for the Steamboat Basecamp Apartments project. The locations of several test pits were surveyed at the time of excavation; however, the survey data was not available at the time of this report.

The subsurface conditions encountered in the test pits were variable and generally consisted of variable layers of fill and topsoil materials overlying natural clays and natural sands and gravels. Graphic logs of the exploratory test pits are presented in Figures #2 and #3. The associated Legend and Notes are presented in Figure #4.

Sand and gravel fill materials were encountered at the ground surface in test pits 4, 5, 12 and 13 and ranged from 6 to 12 inches in thickness. A thin layer of topsoil and organic fill materials was encountered at the ground surface in test pits 1, 2, 3, 6, 7, 8, 9, 10 and 11. The topsoil and organic fill materials were 3 to 6 inches in thickness. Clay fill materials were encountered below the topsoil and organic fill materials or sand and gravel fill materials in all of the test pits with the exception of test pits 4 and 5. The clay fill materials were sandy with occasional gravels and debris, low to highly plastic, medium stiff to soft, moist and brown in color.

A layer of natural topsoil and organic materials was encountered below the sand and gravel fill materials in test pits 4 and 5 and the layer ranged from approximately 4 to 12 inches in thickness.

Natural clays were encountered below the fill materials and natural topsoil and organic materials in all of the test pits at depths ranging from 1 to 6 feet bgs. The natural clays extended to depths ranging from 2½ to 13 feet below the existing ground surface (bgs). The natural clays were typically 1 to 2 feet in thickness in the southeast portion of the site near Townhome Buildings 2, 3, 4, 5 and 6. The natural clays were typically 4 to 9 feet in thickness in the northeast and east-central portion of the site near Townhome Building 1 and the pole barn and restaurant buildings. The natural clays were slightly sandy to sandy, moderately to highly plastic, stiff, moist and brown in color. Swell-consolidation tests conducted on samples of the natural clays from the previous investigations indicate the clays will exhibit a moderate to high swell potential when wetted under a constant load.

Natural sands and gravels were encountered below the natural clays in all of the test pits. The natural sands and gravels were encountered at depths of 2½ to 3½ feet below the existing ground surface in test pits 1 through 7 in the southeast portion of the site near Townhome Buildings 2 through 6. The natural sands and gravels were encountered at depths of 11 to 13 feet bgs in the area of Townhome Building 1, and 9 to 10 feet bgs in the area of the pole barn and the restaurant. The natural sands and gravels were silty to slightly clayey, fine to coarse grained with cobbles and small boulders, very low to non-plastic, dense, moist and brown to gray in color.

NWCC recommends a **Site Class C** designation be used in structural design calculations in accordance with Table 20.3-1 in Chapter 20 of ASCE 7.

Groundwater was not encountered in the test pits at the time of excavation.

Foundation Recommendations: Based on a review of the previous reports and the subsurface conditions encountered in the test pits recently excavated at the site, NWCC anticipates that the natural sands and gravels will be encountered from 2 to 5 feet bgs in the area of Townhome Buildings 2 through 6. NWCC

anticipates the natural sands and gravels will be encountered at a depth of 11 to 13 feet bgs in the area of Townhome Building 1, and 9 to 10 feet bgs in the area of the pole barn and restaurant building.

Due to the highly variable depth of the existing fill materials and the swell potential of the natural clays, NWCC believes the most economically feasible building foundation system, for the buildings where the natural sands and gravels are situated within 5 to 6 feet of the existing ground surface, will consist of footings placed on the natural sands and gravels or on properly compacted structural fill materials placed over the natural sands and gravels after all of the existing fill materials and underlying topsoil and organic materials, and natural clays are removed. Due to the moderate to high swell potential of the clays, NWCC recommends the clays be removed from beneath all of the footings.

NWCC recommends the footings placed on the natural sands and gravels or on properly compacted, structural fill materials placed over the natural sands and gravels be designed using a maximum allowable soil bearing pressure of 3,000 psf. NWCC recommends structural fill materials placed under the footings consist of a non-expansive granular soil approved by this office. Footings placed on the natural sands and gravels or on non-expansive granular fill placed over the natural sands and gravels will not require a minimum dead load.

Structural fill materials should be uniformly placed in 6 to 8 inch loose lifts and compacted to at least 100 percent of the maximum standard Proctor density, within 2 percent of the optimum moisture content as determined by ASTM D-698. Structural fill materials should extend out from the edge of the footings on a 1(horizontal) to 1(vertical) or flatter slope. The footings should be placed on a maximum of 6 feet of structural fill materials that have been tested and approved by NWCC.

NWCC recommends a modulus of subgrade reaction of 200 pounds per cubic inch may be used for the natural sands and gravels or granular fill materials in the design of the foundations. The allowable bearing capacity of 3,000 psf recommended for the footings may be increased by 1/3 for transient loads.

Alternate Foundation Recommendations: In areas where the removal of all of the existing fill materials and natural clays is not economically feasible (> 6 feet), an alternative deep foundation system for the buildings should be utilized. Alternate deep foundation systems would consist of drilled footings, helical screw piles, micropiles or rammed aggregate piers (RAP) advanced into the natural sands and gravels. High capacity helical or micropiles or pile groups with pile caps will most likely be required for the buildings due to anticipated loadings.

The deep foundation systems will place the bottom of the foundations in a zone of relatively stable bearing soils and eliminate the risk of foundation movement from swell and/or consolidation of the existing fill materials and natural clays.

Drilled Footings: Drilled footings, utilizing larger diameter drilled piers (24 inches or larger), constructed on the natural sands and gravels can be designed using an allowable end bearing pressure of 4,000 psf. Each drilled footing can support an individual column or grade beams supported by a series of piers. The

drilled footings should penetrate a minimum of 12 inches into the natural sands and gravels. Any loose materials should be removed and the bearing soils approved by NWCC, prior to placement of concrete.

Helical Screw Piles: Utilizing a helical screw pile foundation, each column is supported on a single or group of screw piles and the structures are founded on grade beams or pier caps that are supported by a series of piles. Load applied to the piles is transmitted to the natural sands and gravels through the end bearing pressure at the helices of the screw pile. Foundation movement should be less than ½-inch if the following design and construction conditions are observed.

The helical screw pile foundation system should be designed by a qualified engineer, using industry standards and be installed by a licensed/certified installer. If pile groups are required, we recommend a minimum pile spacing of 3 times the largest helix to achieve the maximum capacity of each individual pile. Lateral loads should be resisted using battered piles or tiebacks or through passive soil pressures against foundation walls or grade beams.

We strongly recommend that at least two test piles be advanced at each building site so that the torque versus depth relationships can be established and the proper shaft and helix size and type can be determined. In addition, load testing of the helical screw piles is strongly recommended to verify the design capacity of the piles. Difficult installation may be encountered due to the presence of cobbles and boulders in the fill materials.

A representative of this office should observe the test piles/load test and helical screw pile installations.

NWCC also recommends the following:

- Minimum 6-inch diameter helix;
- Minimum installation torque of 4,000 ft-lbs;
- Upper helix must penetrate minimum of 2 feet into natural sands and gravels;
- Full-time installation observation by a qualified special inspector;
- Review of the Contractor's quality control plan regarding instrumentation calibration and testing, materials QC, and pile installation procedures.

Micropiles: Utilizing a micropile foundation, loads are supported by a group of piles and the structures are founded on grade beams or pier caps. Load applied to the piles is transmitted to the natural sands and gravels through the end bearing pressure at the pile tip. NWCC recommends the micropiles extend a minimum of 5 feet into the natural sands and gravels. Foundation movement should be less than ½-inch if the following design and construction conditions are observed.

Micropile foundation elements are typically designed as proprietary foundation systems. If a micropile foundation system is selected, NWCC should be contacted to coordinate with the micropile contractor/design team during foundation design.

We strongly recommend that at least three test piles be advanced at each building site so that load testing of the micro piles can be conducted to verify the design capacity of the piles. Difficult installation should be anticipated due to the presence of cobbles and boulders. A representative of this office should observe the test piles/load test and micropile installations.

Rammed Aggregate Piers: An alternative deep foundation system would consist of rammed aggregate piers (RAP). The rammed aggregate piers are typically constructed to bridge poor bearing soils, such as the existing fill materials and natural clays encountered at this site, extending down to a suitable bearing layer, the underlying natural sands and gravels. A RAP foundation system should develop an end bearing pressure of at least 4,000 psf for aggregate piers founded in the sand and gravels. A RAP foundation system has the advantage of not only supporting shallow foundation elements, but also supporting floor slab areas and improving the engineering characteristics of the existing fill materials and native soils between the piers, thus decreasing the potential for floor slab movement.

RAP foundation elements are designed as proprietary foundation systems. If a RAP foundation system is selected, NWCC should be contacted to coordinate with the RAP contractor/design team during foundation design.

Concrete Slab-on-Grade Floor Systems: NWCC understands the lower level of each Townhome Building will be constructed with concrete slab floor systems placed near the existing grades.

The natural clays or sands and gravels, excluding any existing fill materials and topsoil and organic materials, are capable of supporting slab-on-grade construction. However, floor slabs present a very difficult problem where swelling materials are present near floor slab elevation because sufficient dead load cannot be imposed on them to resist the uplift pressure generated when the materials are wetted and expand. Based on the moisture-volume change characteristics of the natural clays encountered at this site, NWCC believes slab-on-grade construction may be used, provided the risk of distress resulting from slab movement is recognized and special design precautions are followed.

If slab movement is not tolerable, all of the clays must be removed under the concrete slab-on-grade floor systems. In areas where the natural sands and gravels are deeper and the removal of all of the existing fill materials and natural clays is not economically feasible, structural floors constructed over crawlspace areas or void form materials should be used.

The following measures must be taken to reduce damage, which could result from movement should the underslab clays be subjected to moisture changes.

1) Floor slabs must be separated from all bearing walls; columns and their foundation support with a positive slip joint. NWCC recommends the use of ½-inch thick cellotex or impregnated felt.

2) Interior non-bearing partition walls resting on the floor slabs must be provided with a slip joint, preferably at the bottom, so in the event, the floor slab moves this movement is not transmitted to the upper structure. This detail is also important for wallboard and doorframes and is shown in

Figure #6. This detail can be omitted if all of the clays are removed from beneath the floor slabs and replaced with non-expansive fill materials.

3) A minimum 6-inch gravel layer must be provided beneath all floor slabs to act as a capillary break and to help distribute pressures. Prior to placing the gravel, excavation should be shaped so that if water does get under the slab, it will flow to the low point of the excavation. In addition, all existing fill materials and topsoil and organic materials should be removed prior to placement of the underslab gravels or new granular fill materials. If the removal of all of the existing fill materials and topsoil and organics and replacing with granular fill materials is not economically feasible, we recommend the lower levels be constructed on structural floor systems over crawlspace areas or void form materials.

4) Floor slabs must be provided with control joints placed a maximum of 10 to 12 feet on center in each direction, depending on slab configurations, to help control shrinkage cracking. Locations of the joints should be carefully checked to assure that natural, unavoidable cracking will be controlled. Depth of the control joints should be a minimum of ¼ the thickness of the slab.

5) Underslab soils must be kept as close as possible to their in-situ moisture content. Excessive wetting or drying of these soils prior to placement of floor slab could result in differential movement after slabs are constructed.

6) If fills are required to bring underslab areas to the desired grade, the fill should consist of non-expansive, granular materials. Fill should be uniformly placed and compacted in 6 to 8-inch lifts to at least 95% of the maximum standard Proctor density at or near the optimum moisture content, as determined by ASTM D-698.

Following the above precautions and recommendations will not prevent floor slab movement in the event the clays beneath the floor slabs undergo moisture changes. However, they should reduce the amount of damage if such movement occurs. The only way to eliminate the risk of all floor slab movement is to construct a structural floor over a well-vented crawlspace or void form materials, or remove all of the expansive clays and replace them with non-expansive granular fill materials.

Foundation Walls and Retaining Structures: Foundation walls and retaining structures, which are laterally supported and can be expected to undergo only a moderate amount of deflection, may be designed for a lateral earth pressure computed on the basis of an equivalent fluid unit weight of 45 pcf for imported, free draining granular backfill, 50 pcf for the natural sands and gravels and 55 pcf for on-site clay soils.

Cantilevered retaining structures at the site can be expected to deflect sufficiently to mobilize full active earth pressure condition. Therefore, cantilevered structures may be designed for a lateral earth pressure computed on the basis of an equivalent fluid unit weight of 35 pcf for imported, free draining granular backfill, 40 pcf for the natural sands and gravels and 45 pcf for on-site clay soils.

Foundation walls and retaining structures should be designed for appropriate hydrostatic and surcharge pressures such as adjacent buildings, traffic and construction materials. An upward sloping backfill and/or natural slope will also significantly increase earth pressures on foundation walls and retaining structures and the structural engineer should carefully evaluate these additional lateral loads when designing foundation and retaining walls.

Lateral resistance of retaining wall foundations placed on undisturbed natural soils at the site will be a combination of sliding resistance of the footings on the foundation materials and passive pressure against the sides of footings. Sliding friction can be taken as 0.4 times the vertical dead load. Passive pressure against the sides of the footing can be calculated using an equivalent fluid pressure of 250 pcf. Fill placed against the sides of footings to resist lateral loads should be compacted to at least 100% of the maximum standard Proctor density and near the optimum moisture content.

NWCC recommends imported granular soils for backfilling foundation walls and retaining structures because their use results in lower lateral earth pressures. Imported granular materials should be placed to within 2 to 3 feet of the ground surface. Imported granular soils should be free draining and have less than 7 percent passing the No. 200 sieve. Granular soils placed behind foundation and retaining walls should be sloped from the base of the wall at an angle of at least 45 degrees from the vertical. The upper 2 to 3 feet of fill should be a relatively impervious soil or pavement structure to prevent surface water infiltration into the backfill.

Wall backfill should be carefully placed in uniform lifts and compacted to at least 95 percent of the maximum standard Proctor density and near the optimum moisture content. Care should be taken not to overcompact backfill since this could cause excessive lateral pressure on the walls. Some settlement of deep foundation wall backfill materials will occur even if materials are placed correctly.

Underdrain Systems: If the proposed buildings are constructed with roof drainage systems and the perimeter of the buildings are not subjected to roof runoff, it is NWCC's opinion that perimeter drainage systems will not be required around the buildings.

If roof drainage systems are not placed on the buildings NWCC recommends shallow perimeter drainage systems be installed around each of the exterior building perimeters to direct the roof runoff away from the buildings. This runoff can infiltrate the structures at the foundation level. This water can be one of the primary causes of differential foundation and slab movement.

The shallow drainage systems, if constructed, should be located around each of the building perimeters and be placed and at least 12 inches below interior slab or crawl space grades and a minimum of 24 inches below final grades to provide frost protection. Ideally, the drainage systems should be centered along roof drip-line locations. In locations where roof drip-lines are not present, the drainage systems may be located within 24 inches of foundation walls. Drains should be insulated using 2-inches of rigid polystyrene insulation board in locations higher than 48 inches below final grade to provide protection against freezing.

Perimeter drainage system piping should be constructed using perforated PVC pipe that meets or exceeds ASTM D-3034/SDR 35 requirements to provide satisfactory long-term function and rapid runoff of water.

The holes in the drainpipes should be oriented down between 4 o'clock and 8 o'clock to promote rapid runoff of the water. The drainpipes should be covered with at least 12 inches of free draining gravel and be protected from contamination by a geotextile filter fabric covering of Mirafi 140N subsurface drainage fabric or an equivalent product. The drainpipes should have a minimum slope of 1 percent and be daylighted at positive outfalls that are protected from freezing. If the drainpipes cannot be daylighted, the drains should be led to sumps where the water can be pumped. Multiple daylights or sumps are recommended for the proposed structures. A typical shallow perimeter/underdrain detail is shown in Figure #7.

Caution should be taken when backfilling so as not to damage or disturb the installed drains. NWCC recommends the drainage piping include cleanouts provided at minimum 100-foot intervals, be protected against intrusion by animals at the outfalls and be tested prior to backfilling. NWCC should be retained to provide periodic observations of underdrain construction to verify installations have been accomplished in general accordance with these recommendations. Flow testing of the systems is also highly recommended.

Surface Drainage: Proper surface drainage at this site is of paramount importance for minimizing infiltration of surface drainage into wall backfill and bearing soils, which could result in increased wall pressures, differential foundation, and slab movement. The following drainage precautions should be observed during construction and at all times after the structures have been completed:

1) Ground surface surrounding structures should be sloped (minimum of 1.0 inch per foot) to drain away from structures in all directions to a minimum of 10 feet. Ponding must be avoided. If necessary, raising the top of foundation walls to achieve a better surface grade is advisable.

2) Non-structural backfill placed around structures should be compacted to at least 95% of the maximum standard Proctor density at or near the optimum moisture content to minimize future settlement of the fill. Backfill should be placed immediately after the braced foundation walls are able to structurally support the fill. Puddling or sluicing must be avoided.

3) Top 2 to 3 feet of soil placed within 10 feet of foundations should be impervious in nature to minimize infiltration of surface water into wall backfill.

4) Roof downspouts and drains should discharge well beyond the limits of all backfill. Roof overhangs, which project two to three feet beyond foundation walls, should be considered if gutters are not used.

5) Landscaping, which requires excessive watering and lawn sprinkler heads, should be located a minimum of 10 feet from the foundation walls of the structures or any permanent, unretained cuts. Additionally, large piles of man-made or natural snow should be removed prior to melting within 10 feet of the foundation walls of the structures or any permanent, unretained cuts.

6) Plastic membranes should not be used to cover the ground surface adjacent to foundation walls.

Pavement Section Recommendations: Pavement section recommendations presented below are based on anticipated soil conditions, assumed traffic loadings indicated below, pavement design procedures presented in the AASHTO Guide for Design of Pavement Structures, and our experience with similar sites and conditions in this part of Steamboat Springs. AASHTO pavement design procedures have been adopted and are used by the Colorado Department of Transportation (CDOT). NWCC has assumed the proposed pavement areas will be subjected to automobiles with occasional delivery trucks and with regular trash truck service.

Based on the results of the field and laboratory investigations and our understanding of the proposed construction, it appears the materials to be encountered at proposed pavement subgrade elevations will most likely consist of existing fill materials or natural clays. We have assumed the subgrade materials will consist of compacted clay fill materials or natural clays that generally classified as CL soils in accordance with the USCS, which is the worst-case scenario. NWCC recommends the pavement areas subjected to both truck and automobile traffic, such as at the entrances and roadways through the facility be constructed with a minimum of 4 inches of hot mix asphalt (HMA) overlying a minimum of 4 inches of CDOT class 6 aggregate base course (ABC) and a minimum of 8 inches of subbase aggregates (Pit Run). The pavement areas subjected to automobiles only, such as the parking stalls, can be paved with a minimum of 3 inches of HMS, 4 inches of CDOT class 6 aggregate base course (ABC), and a minimum of 6 inches of subbase aggregates (subbase).

NWCC recommends the areas subjected to heavy truck turning movements, such as the pads in front of the trash dumpsters or loading docks be paved with a rigid pavement section consisting of at least 8 inches of Portland cement concrete (PCC). Sidewalks and outdoor patio areas can be constructed with a minimum of 4 inches of PCC.

NWCC recommends the asphalt pavement material (HMA) consist of an approved "Superpave" mix designed by a qualified, registered engineer. The mix design should be designed using the SX gradation, mixed with PG 58-28 oil or other performance graded asphaltic materials with 75 gyrations. To reduce rutting of the pavement surface in areas where tight turning radius are anticipated, a polymer modified binder (higher grade asphalt cement) can be used. NWCC recommends that PG 64-28 or higher quality binder/cement be used in the top mat of asphalt if rutting of the asphalt is a concern.

The mix should be produced and placed by a qualified contractor and should be compacted to between 92 and 96 percent of the maximum theoretical (Rice) density or at least 92 percent of the maximum Rice density. Quality control activities should be conducted on paving materials at the time of placement.

Base course materials (ABC) should consist of a well-graded aggregate base course material that meets CDOT Class 6 ABC grading and durability requirements and the subbase should consist of well-graded aggregate materials that meet CDOT Class 2 ABC grading and durability requirements.

ABC and subbase materials should be uniformly placed and compacted in 4 to 6-inch loose lifts to at least 95 % of the maximum modified Proctor density and within +/- 2 % of the optimum moisture content as determined by ASTM D1557.

Concrete pavement materials shall be based on a mix design established by a qualified engineer. Concrete should have a minimum 28-day compressive strength of 4,500 psi, be air-entrained with approximately 6 percent air, and have a maximum water/cement ratio of 0.42. Concrete should have a maximum slump of 4 inches and should contain control joints no greater than 10 to 12 feet on center, depending on slab configurations. The depth of the control joints should be at least ¼ of the slab thickness.

Prior to placement of subbase materials for pavement areas or exterior concrete slabs, NWCC recommends that all of the existing fill materials and any debris be removed, and the exposed subgrade materials be moisture conditioned and compacted. Prior to placement of the subgrade fill materials the natural clays should be scarified and recompacted to a depth of 8 inches. The scarified natural clays and subgrade materials should be compacted in 6 to 8 inch lifts to at least 95 % of the maximum standard Proctor density and within +/- 2 % of the optimum moisture content as determined by ASTM D698. The finished subgrade surface, after recompaction, should also be sloped at least 1 percent to avoid ponding and to reduce the potential for wetting and expansion of the subgrade soils. The finished subgrade surface should be proof rolled with a loaded tandem dump truck or loaded water truck and any areas deflecting or rutting should be removed and or stabilized prior to placing the subbase aggregates.

The collection and diversion of surface and subsurface drainage away from the paved areas and exterior concrete slabs is extremely important to the satisfactory performance of these elements. The design of the surface and subsurface drainage features should be carefully considered to remove all water from paved areas and sidewalks/patio areas to prevent ponding of water on and adjacent to these areas.

Limitations: The recommendations provided in this report are based on the subsurface conditions encountered at this site and our understanding of the proposed construction. We believe that this information gives a high degree of reliability for anticipating the behavior of the proposed structures; however, our recommendations are professional opinions and cannot control nature, nor can they assure the soils profiles beneath those or adjacent to those observed. No warranties expressed or implied are given on the content of this report.

Expansive soils were encountered at this site. These soils are not prone to volume changes at their natural moisture content but can consolidate or swell with changes in moisture and loading. The behavior of expansive soils is not fully understood. The swell and/or consolidation potential of any particular site can change erratically both in lateral and vertical extent. Moisture changes also occur erratically, resulting in conditions, which cannot always be predicted. The recommendations presented in this report are based on the current state of the art for foundations and floor slabs on swelling/consolidating soils. The owner should be aware that there is a risk in construction on these types of soils. Performance of the structures will depend on following the recommendations and in proper maintenance after construction is complete. As water is the main cause for volume change in the soils, it is necessary that the changes in moisture content be kept to a minimum; therefore, positive surface drainage should be maintained away from the structures. Any distress noted in the structures should be brought to the attention of this office.

This report is based on the investigation at the described site and on the specific anticipated construction as stated herein. If either of these conditions is changed, the results would also most likely change. Therefore,

NWCC strongly recommends that our firm be contacted prior to finalizing the construction plans so that we can verify that our recommendations are being properly incorporated into the construction plans. Man-made or natural changes in the conditions of a property can also occur over a period of time. In addition, changes in requirements due to state of the art knowledge and/or legislation do from time to time occur. As a result, the findings of this report may become invalid due to these changes. Therefore, this report is subject to review and not considered valid after a period of 3 years or if conditions as stated above are altered.

It is the responsibility of the owner or his representative to ensure information in this report is incorporated into the plans and/or specifications and construction of the project. It is advisable that a contractor familiar with construction details typically used to dealing with the local subsoils and climatic conditions be retained to build the structures.

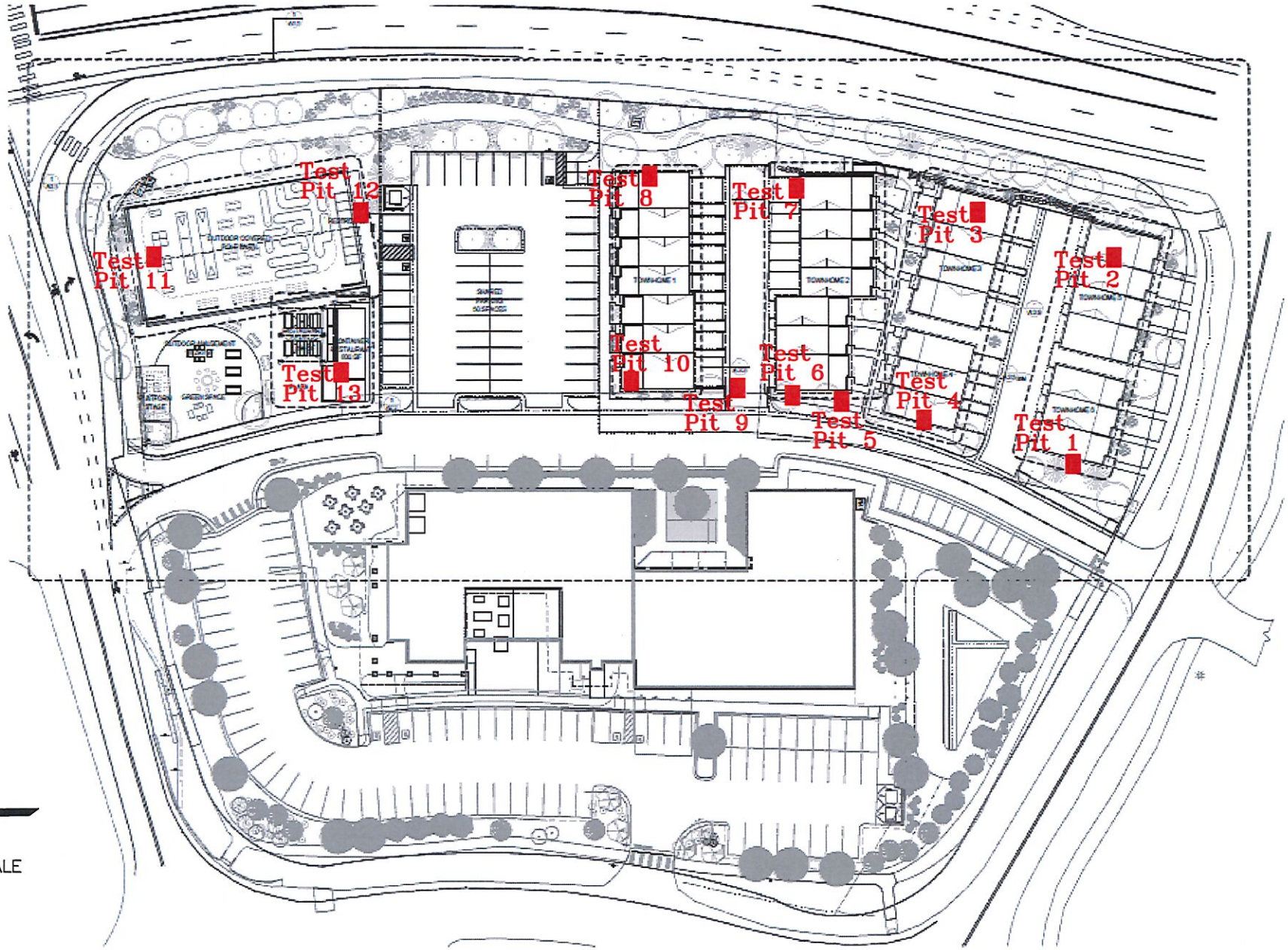
If you have any questions regarding this report or if we may be of further service, please do not hesitate to contact us.

Sincerely,
NWCC, INC.,

Timothy S. Travis, P.E.
Senior Project Engineer

COLORADO LICENSED
BRIAN D. LEN
25750
PROFESSIONAL ENGINEER

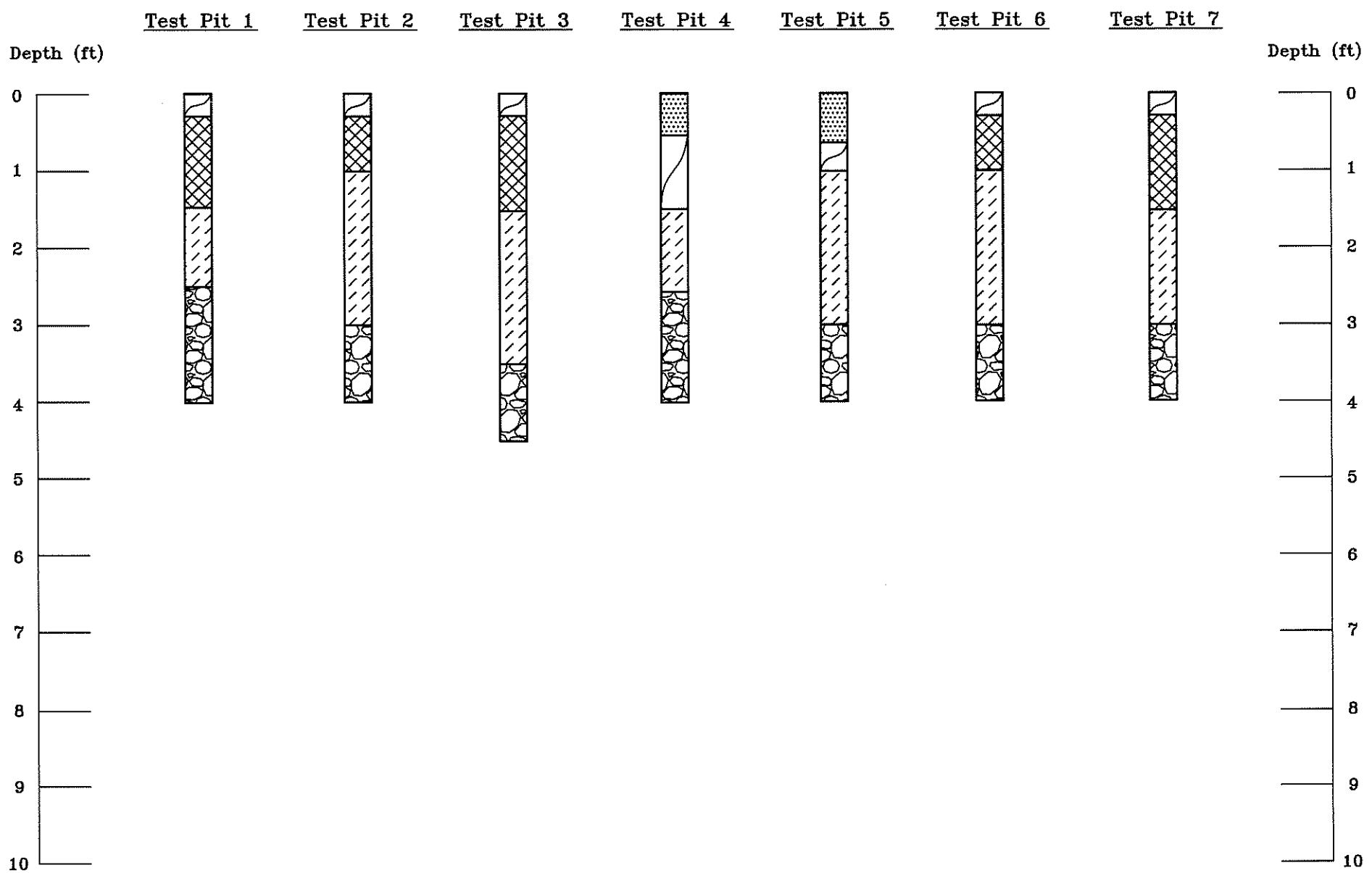
Reviewed by Brian D. Len, P.E.
Principal Engineer



A-100-34

NOT TO SCALE

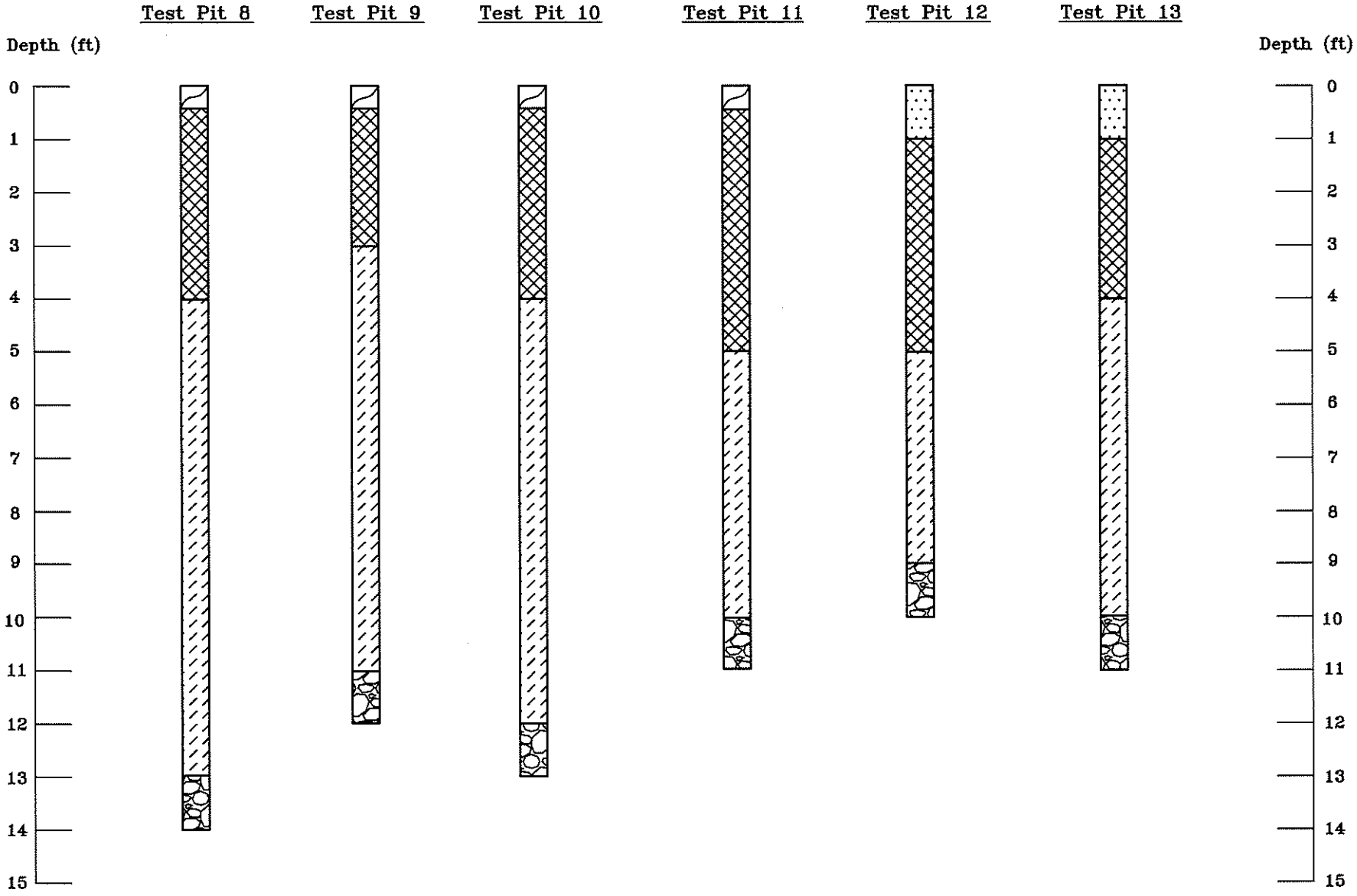
Title: LOCATION OF TEST PITS		**Date:** 7/13/2022	NWCC North West Colorado Consultants, Inc. Geotechnical / Environmental Engineering - Materials Testing
Job Name: Steamboat Basecamp Townhomes		**Job No.** 20-11961	(970)879-7888- Fax (970)879-7891 2580 Copper Ridge Drive Steamboat Springs, Colorado 80487
LOCATION: 1901 Curve Plaza, Steamboat Springs, Colorado		**Figure** #1	



A-100-35

Title:	LOGS OF EXPLORATORY TEST PITS	Date: 7/13/2022	
Job Name:	Steamboat Basecamp Townhomes	Job No. 20-11961	
LOCATION:	1901 Curve Plaza, Steamboat Springs, Colorado	Figure #2	

NWCC
North West Colorado Consultants, Inc.
Geotechnical / Environmental Engineering - Materials Testing
(970)879-7888 • Fax (970)879-7891
2580 Copper Ridge Drive
Steamboat Springs, Colorado 80487



Title:	LOGS OF EXPLORATORY TEST PITS	Date: 7/13/2022	NWCC North West Colorado Consultants, Inc. Geotechnical / Environmental Engineering - Materials Testing
Job Name:	Steamboat Basecamp Townhomes	Job No. 20-11961	(970)879-7868 - Fax (970)879-7891 2580 Copper Ridge Drive Steamboat Springs, Colorado 80487
LOCATION:	1901 Curve Plaza, Steamboat Springs, Colorado	Figure #3	

A-100-36

LEGEND:

SAND AND GRAVEL FILL: Silty to clayey, low to non-plastic, loose to medium dense, slightly moist and brown in color.

Topsoil and organics.

CLAY FILL: Sandy with occasional gravels and debris, low to highly plastic, medium stiff to soft, moist and brown in color.

CLAY: Slightly sandy to sandy, moderately to highly plastic, stiff, moist and brown in color.

SANDS AND GRAVELS: Silty to slightly clayey, fine to coarse grained with cobbles and small boulders, very low to non-plastic, dense, moist and brown to gray in color.

NOTES:

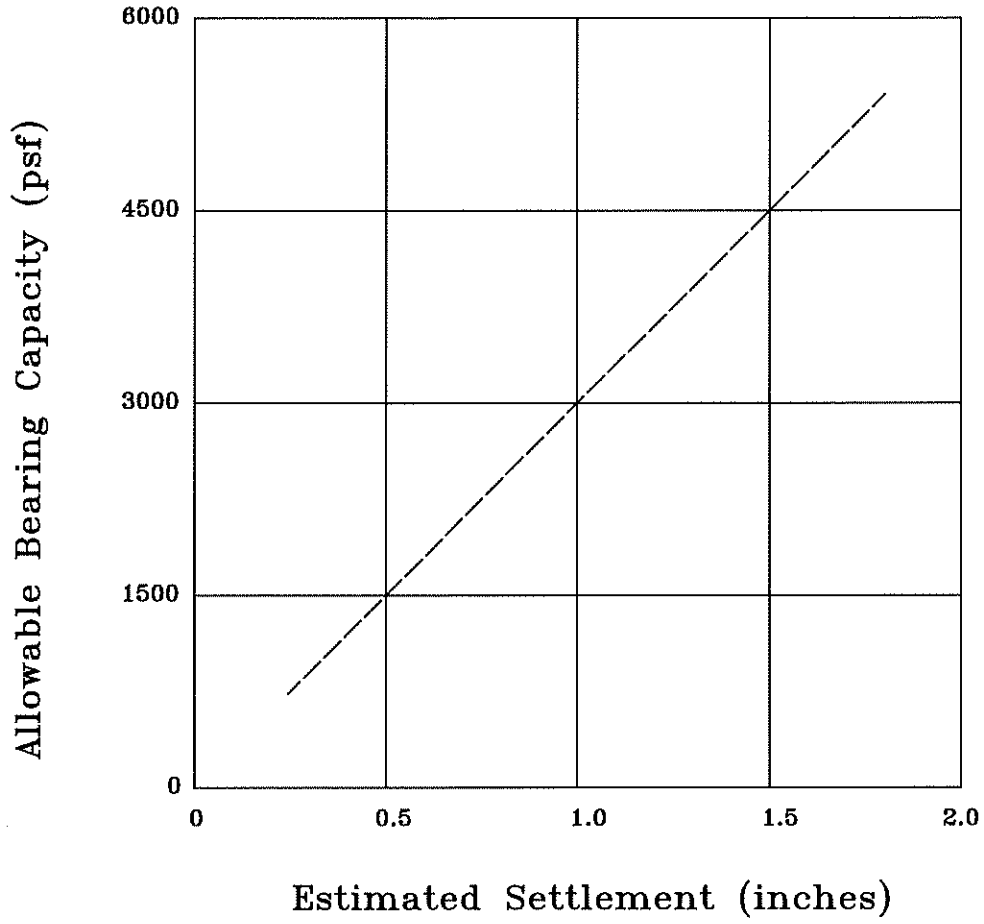
1) Test Pits were excavated on July 12, 2022 with a Trackhoe,

2) Locations of the test pits were determined in the field by pacing from the existing structure.

3) Elevations of the test pits were not measured and logs are drawn to the depths investigated.

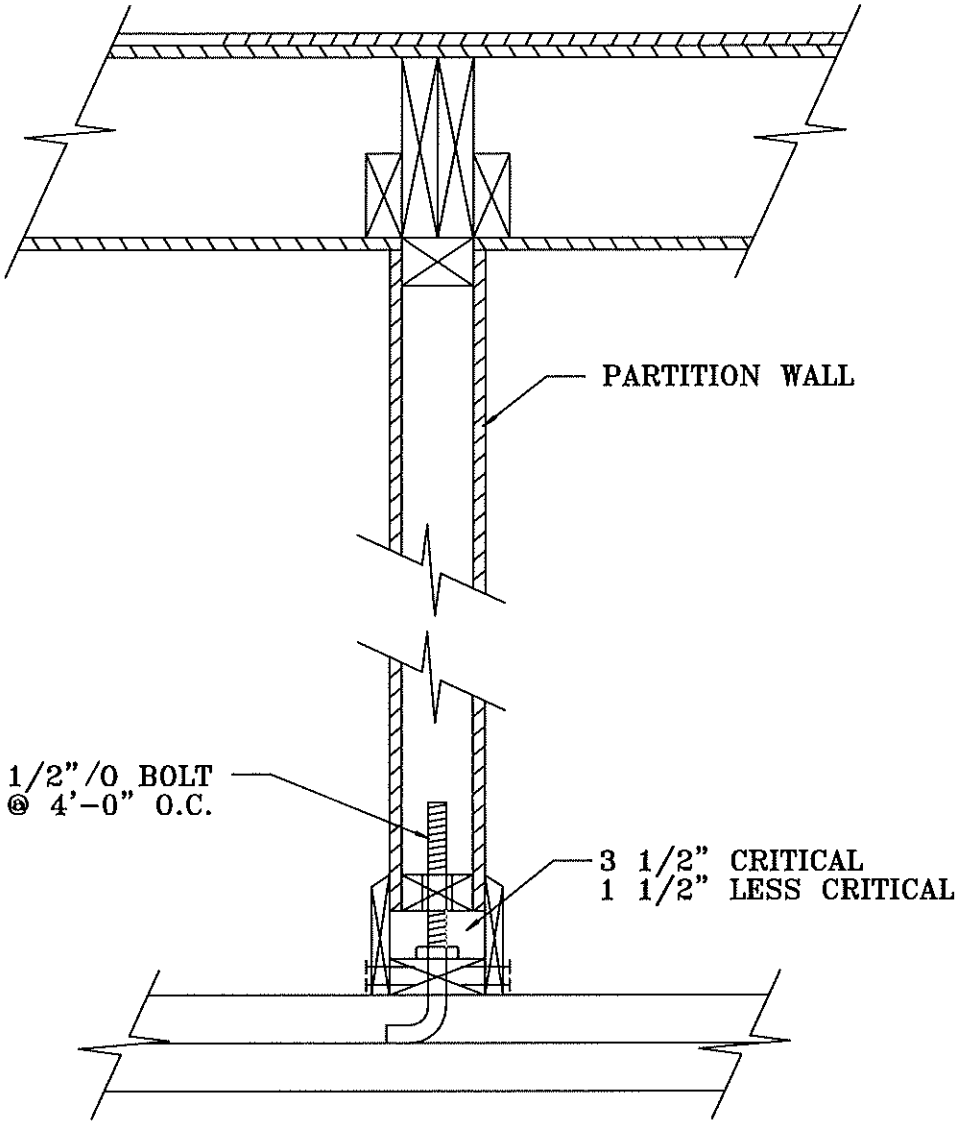
4) The lines between materials shown on the logs represent the approximate boundaries between material types and transitions may be gradual.

Title: LEGEND AND NOTES		Date: 7/15/2022	NWCC North West Colorado Consultants, Inc. Geotechnical / Environmental Engineering - Materials Testing
Job Name:	Steamboat Basecamp Townhomes	Job No. 20-11961	(970)879-7688 · Fax (970)879-7691 2580 Copper Ridge Drive Steamboat Springs, Colorado 80487
Location:	1901 Curve Plaza, Steamboat Springs, Colorado	Figure #4	



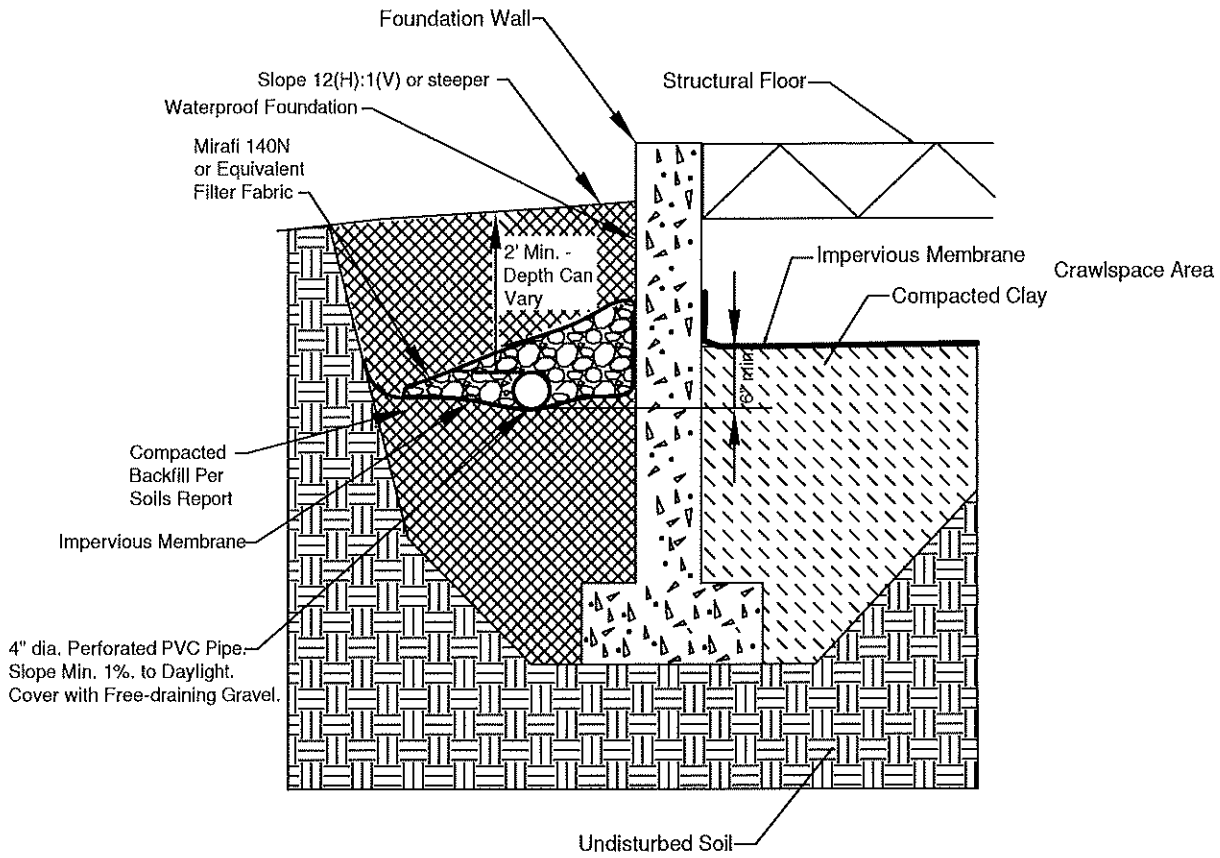
Note: These values are based on footing widths of 1 to 4 feet. If the footing width is to be greater than 4 feet in width, then we should be notified to re-evaluate these recommendations.

Title: BEARING CAPACITY CHART		**Date:** 7/18/2022	NWCC North West Colorado Consultants, Inc. Geotechnical / Environmental Engineering - Materials Testing
Job Name:	Steamboat Basecamp Townhomes	**Job No.** 20-11961	(970)879-7888 · Fax (970)879-7891 2580 Copper Ridge Drive Steamboat Springs, Colorado 80487
Location:	1901 Curve Plaza, Steamboat Springs, Colorado	**Figure** #5	

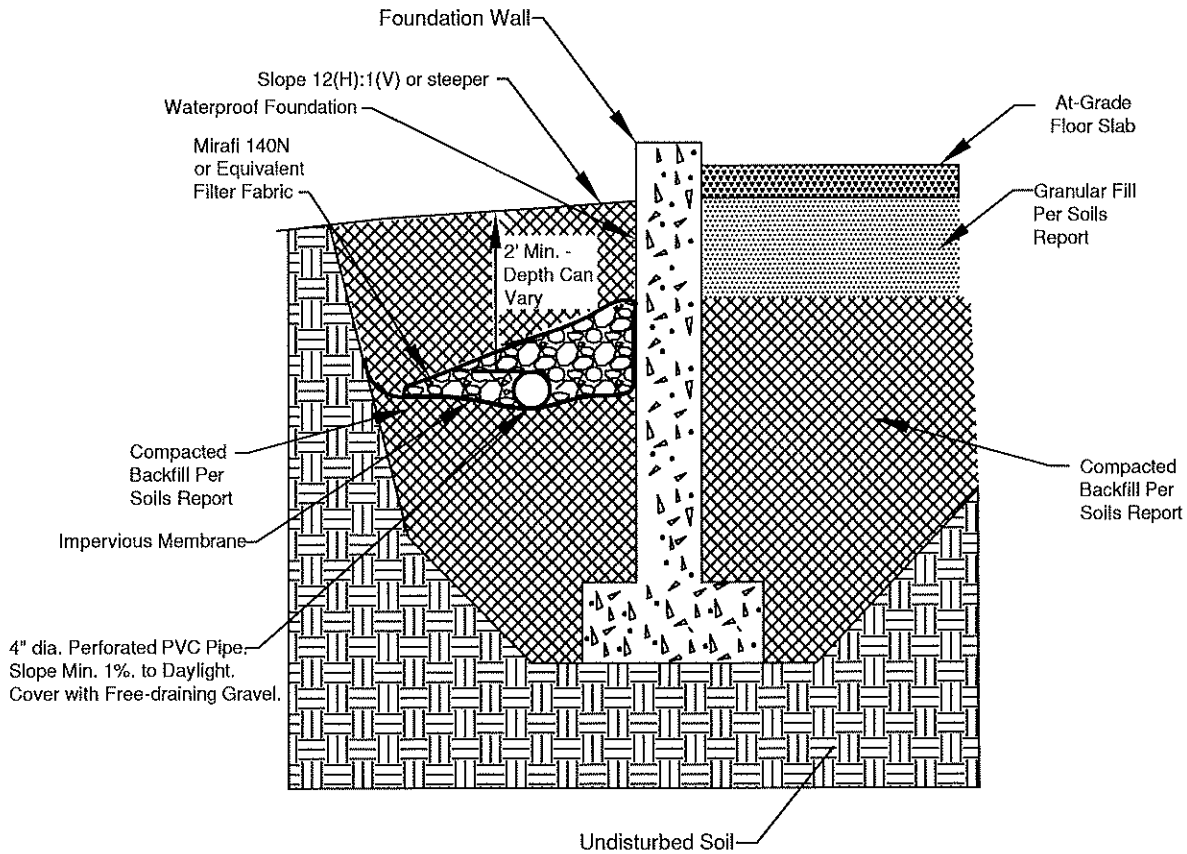


Title: HUNG PARTITION WALL DETAIL		Date: 7/15/2022	NWCC North West Colorado Consultants, Inc. Geotechnical / Environmental Engineering - Materials Testing (970)879-7888 Fax (970)879-7891 2580 Copper Ridge Drive Steamboat Springs, Colorado 80487
Job Name: Steamboat Basecamp Townhomes		Job No. 20-11961	
Location: 1901 Curve Plaza, Steamboat Springs, Colorado		Figure #6	

Crawlspace



Slab-on-Grade



Title: PERIMETER/UNDERDRAIN DETAIL		**Date:** 7/18/2022	NWCC North West Colorado Consultants, Inc. Geotechnical / Environmental Engineering - Materials Testing
Job Name: Steamboat Basecamp Townhomes		**Job No.** 20-11961	(970)879-7688 · Fax (970)879-7891 2580 Copper Ridge Drive Steamboat Springs, Colorado 80487
Location: 1901 Curve Plaza, Steamboat Springs, Colorado	A-100-40	**Figure** #7	